Avaya

User's Guide

AVAYA P332MF

STACKABLE SWITCH

SOFTWARE VERSION 3.12

May 2002

AVAYA

Preface

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications to this equipment not expressly approved by Avaya Inc. could void the user's authority to operate the equipment.

Conventions Used in the Documentation

Documentation for this product users the following conventions to convey instructions and information:

CLI

- Mandatory keywords you type in are in the **`computer bold`** font.
- Information displayed on screen is displayed in `computer` font.
- Variables that you supply are in pointed brackets <>.
- Optional keywords are in square brackets [].
- Alternative but mandatory keywords are grouped in braces {} and separated by a vertical bar |.
- Lists of parameters from which you should choose are enclosed in square brackets [ ] and separated by a vertical bar |.
- If you enter an alphanumeric string of two words or more, enclose the string in inverted commas.

Notes, Cautions and Warnings

Note: Notes contain helpful information or hints or reference to material in other documentation.

Caution: You should take care. You could do something that may damage equipment or result in loss of data.

Warning: This means danger. Failure to follow the instructions or warnings may result in bodily injury. You should ensure that you are qualified for this task and have read and understood *all* the instructions

Table of Contents

List of Figures

List of Tables

Chapter 1

Avaya P330 Overview

The Avaya P330 family of stackable Ethernet workgroup switches includes a range of modules with 10/100/1000 Mbps ports and a Layer 3 capability/ATM Expansion Module. The Avaya P332MF switch has 12x100BaseFX MT-RJ ports and an Expansion Module slot. The optional expansion modules provide additional Ethernet, Fast Ethernet, and Gigabit Ethernet connectivity.

An Avaya P330 stack can contain up to 10 switches and up to 3 backup power supply units. The stacked switches are connected using the Avaya X330STK stacking Modules which plug into a slot in the back of the Avaya P330. They are connected using the X330SC or X330LC cable (if the stack is split between two racks). The Avaya X330RC cable connects the top and bottom switches in the stack and provides redundancy and hot-swappability in the same way that modules can be swapped in a modular switching chassis.

The Avaya P330 is fully compliant with IEEE standards for VLAN Tagging, Gigabit Ethernet, Spanning Tree and Flow Control. This full standards-compliance, combined with auto-negotiation for 10/100/1000 Mbps and half/full duplex facilitates the expansion of your network to match your company's growing needs.

Avaya P330 Family Features

- You can connect up to 10 Avaya P330 switches in a stack. Moreover, this stack can be either in one rack or split over several racks using the X330LC Long Cable, according to your requirements.
- Avaya X330STK - this stacking Module is used to connect Avaya P330 switches in a stack, via the Octaplane.
- Avaya P330 BUPS - this back-up power supply module supports up to four Avaya P330 switches.
- One RJ-45/RS232 front panel console connector for both terminal and modem sessions.
- Two fan units in every switch, with operation sensors.
- One virtual IP address for managing the whole stack, the P330 stack is managed as a single entity.
- Hot-swapping of one switch at a time - by activation of the redundant cable:
  - Does not disrupt the operation of other Avaya P330 switches.
  - Does not change stack configuration.
  - Does not require network downtime.
- Connection through Telnet from the front panel ports of *any* switch, with:
  - multiple levels of password protection
  - login and inactivity timeouts

Avaya P330 Standards Supported

The Avaya P330 complies with the following standards.

IEEE

- 802.3x Flow Control on all ports
- 802.1Q VLAN Tagging support on all ports and 802.1p compatible
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet / Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1492
- RMON - RFC 1757
- SMON - RFC 2613
- Bridge MIB Groups - RFC 2674 dot1dbase and dot1dStp fully implemented. Support for relevant MIB objects: dot1q (dot1qBase, dot1qVlanCurrent)

Avaya P330 Network Management

Comprehensive network management is a key component of today's networks. Therefore we have provided multiple ways of managing the Avaya P330 to suit your needs.

Avaya P330 Device Manager (Embedded Web)

The built-in Avaya P330 Device Manager (Embedded Web Manager) allows you to manage an Avaya P330 stack using a Web browser without purchasing additional software. This application works with the Microsoft® Internet Explorer and Netscape® Navigator web browsers and Sun Microsystems Java™ Plug-in.

Avaya P330 Command Line Interface (CLI)

The Avaya P330 CLI provides a terminal type configuration tool for local or remote configuration of Avaya P330 features and functions.

Avaya Multi-Service Network Manager™

When you need extra control and monitoring or wish to manage other Cajun Campus equipment, then the Avaya Multi-Service Network Manager network management suite is the answer. This suite provides the ease-of-use and features necessary for optimal network utilization.

- Avaya Multi-Service Network Manager is available for Windows® NT®/2000 and Solaris 8.
- Avaya Multi-Service Network Manager can operate in Stand-Alone mode with Windows® NT®/2000.
- Avaya Multi-Service Network Manager operates under HP OpenView for Windows® NT®/2000 and Solaris 8.

Avaya P330 Network Monitoring

RMON MIBs - RFC 1757

- RMON support for groups 1,2,3 and 9
  - — Statistics
  - — History
  - — Alarms
  - — Events

SMON MIBs - RFC 2613

- SMON support for groups
  - — Data Source Capabilities
  - — Port Copy
  - — VLAN and Priority Statistics

Bridge MIB Groups - RFC 2674

- dot1dbase and dot1dStp fully implemented.
- Support for relevant MIB objects: dot1q (dot1qBase, dot1qVlanCurrent)

Port Mirroring

The Avaya P330 provides port mirroring for additional network monitoring functionality. You can filter the traffic and mirror either incoming traffic to the source port or both incoming and outgoing traffic. This allows you to monitor the network traffic you need.

Ports which are members in a Link Aggregation Group (LAG) cannot *also* be used as Port Mirroring Destination or Source ports.

SMON

The Avaya P330 supports Avaya's ground-breaking SMON Switched Network Monitoring, which the IETF has now adopted as a standard (RFC2613). SMON provides an unprecedented top-down monitoring of switched network traffic at the following levels:

- Enterprise Monitoring
- Device Monitoring
- VLAN Monitoring
- Port-level Monitoring

This top-down approach gives you rapid troubleshooting and performance trending to keep the network running optimally.

Note: Avaya Multi-Service Network Manager is required to run SMON monitoring.

Note: You need to purchase one SMON License per Avaya P330 Stack.

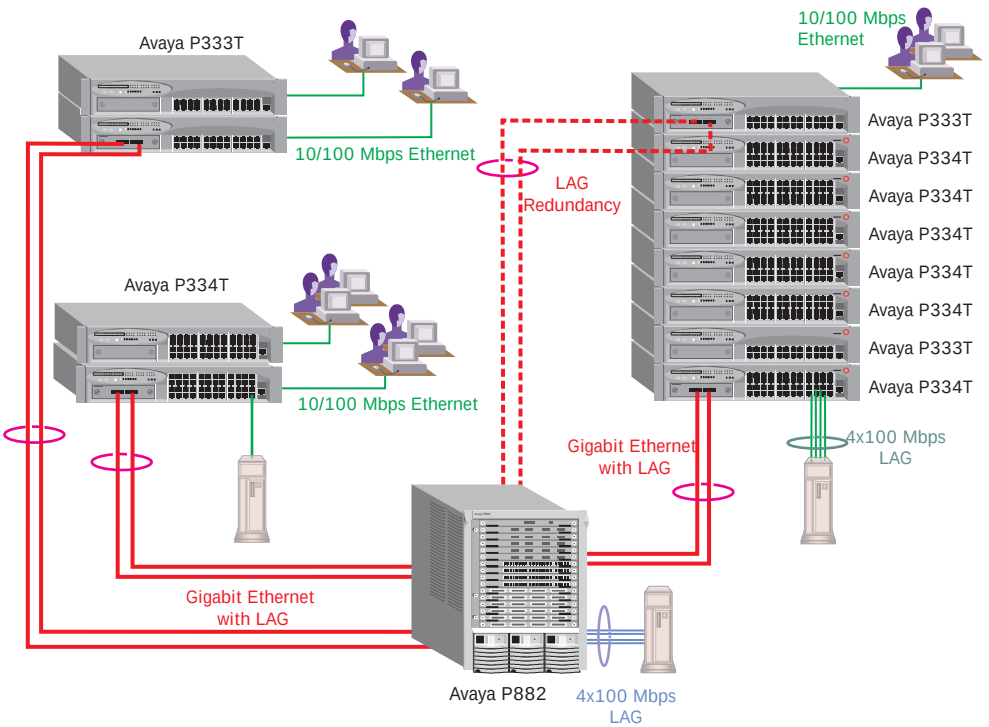
Applications

The following sections describe typical applications for the Avaya P330 in a network with other Cajun Campus products.

Application 1

This application shows Avaya P882 as the network backbone with Avaya P333T and Avaya P334T stacks as closet devices with LAG and redundant links.

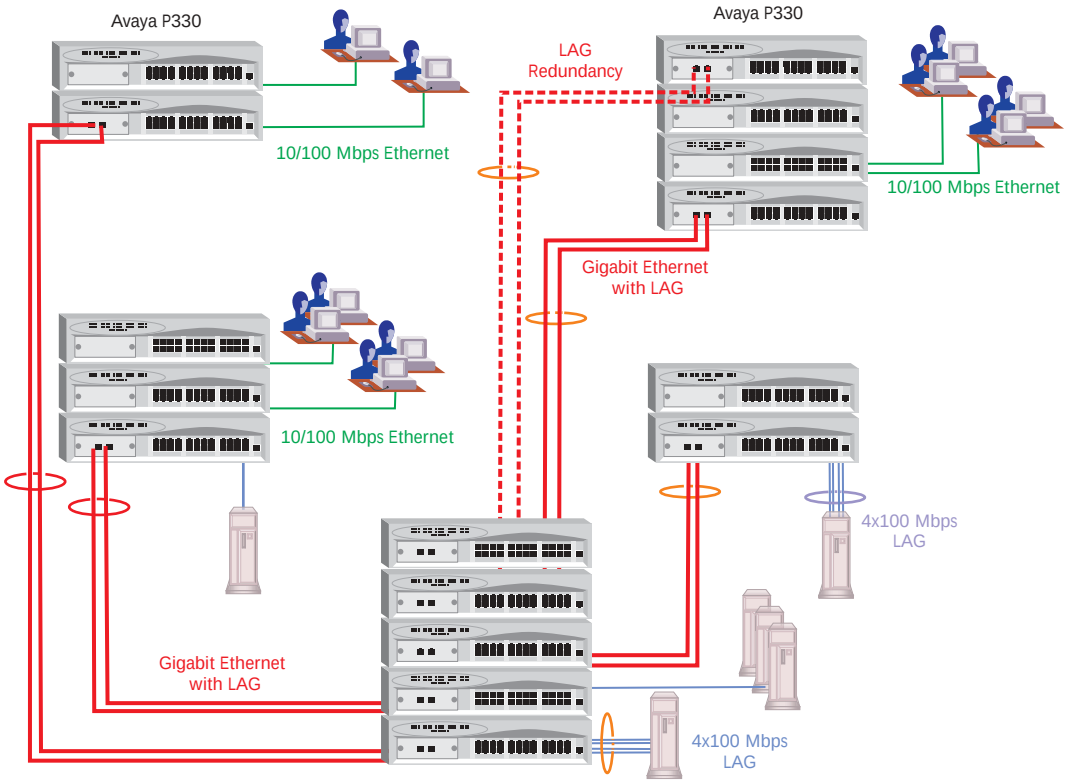
Figure 2.1 Avaya P333T and Avaya P334T stacks with an Avaya P882 Backbone



Application 2

This application shows an Avaya P330 stack forming the backbone of a Small/Medium-sized Enterprise (SME) network with Avaya P330 stacks as closet devices with LAN and redundant links.

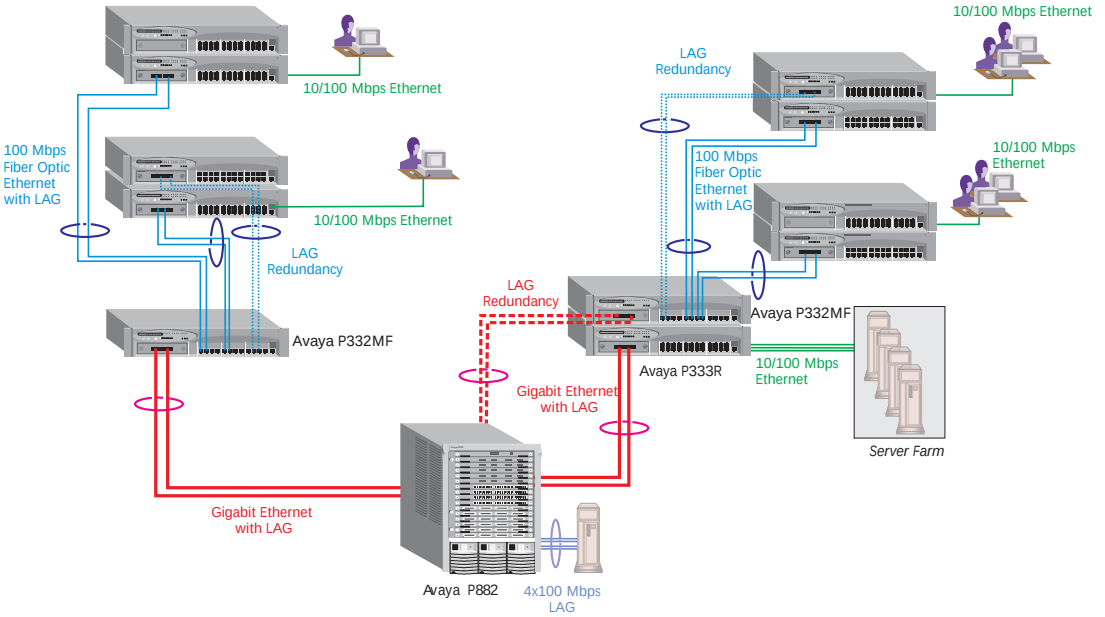
Figure 2.2 Avaya P330 stacks with an Avaya 330 backbone



Application 3

This application shows Avaya P880 as the network backbone with Avaya P332MF deployed as a distribution switch. An Avaya P333R multilayer switch provides local IP routing. The Avaya P333T stacks act as closet devices with LAG and redundant links.

Figure 2.3 Avaya P332MF with an Avaya P882 backbone



Avaya P332MF Front and Back Panels

Avaya P332MF Front Panel

The Avaya P332MF front panel contains LEDs, controls, connectors and an expansion Module slot, as well as a console connector. The status LEDs and control buttons provide at-a-glance information.

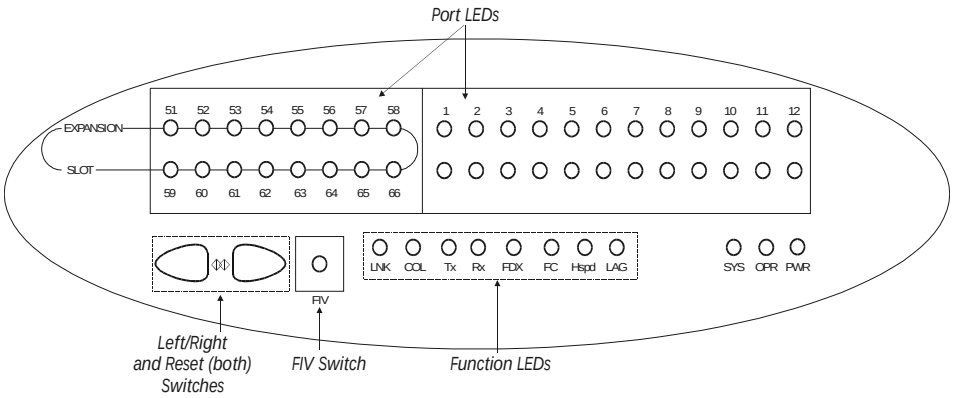
The front panel LEDs consist of Port LEDs and Function LEDs. The Port LEDs display information for each port according to the illuminated function LED. The function is selected by pressing the left or right button until the desired parameter LED is illuminated.

For example, if the COL LED is illuminated, then all Port LEDs show the collision status of their respective port. If you wish to select the LAG function, then press the right button until the LAG Function LED is lit; if you then wish to select Rx then press the left button several times until the Rx function LED lights.

Figure 3.1 shows the Avaya P332MF front panel. Figure 3.2 shows a detailed view of the LEDs (described in Table 3.1), pushbuttons, the Expansion Module slot, and the RJ-45 console connector at the bottom right.

Figure 3.1 Avaya P332MF Front Panel

Figure 3.2 Avaya P332MF LEDs



Note: All LEDs are lit during a reset.

Table 3.1 Avaya P332MF LED Descriptions

LED Name	Description	LED Status
PWR	Power status	OFF – power is off
		ON – power is on
		Blink – using BUPS only
OPR	CPU operation	OFF – Module is booting
		ON – Normal operation
SYS	System Status	OFF – Module is a slave in a stack
		ON – Module is the Master of the stack and the Octaplane and Redundant cable are connected correctly. This LED will also light in Standalone mode.
		Blink – Box is the stack Master and the stack is in redundant mode.
The following Function LEDs apply to ports 1 to 66		
LNK	Port status	OFF – Port disabled
		ON – Port enabled and link OK
		Blink – Port enabled and the link is down

Table 3.1 Avaya P332MF LED Descriptions

LED Name	Description	LED Status
COL	Collision	OFF – No collision or FDX port
		ON – Collision occurred on line
Tx	Transmit to line	OFF – No transmit activity
		ON – Data transmitted on line from the module
Rx	Receive from line	OFF – No receive activity
		ON – Data received from the line into the module
FDX	Half / Full Duplex	OFF – Half duplex mode
		ON – Full duplex mode
FC	Flow Control	OFF – No Flow Control
		ON – Symmetric / Asymmetric Flow Control mode is *enabled* and port is in full duplex mode.
Hspd	High Speed	10 / 100 / 1000 OFF: 10 / N / A ON: 100 / 1000
LAG	Link Aggregation Group (Trunking)	OFF – No LAG defined for this port
		ON – Port belongs to a LAG

Table 3.2 Avaya P330 <- -> Select buttons

Description	Function
Left / Right	Individual – select LED function (see table above).
Reset module	Press both right and left buttons together for approximately two seconds. All LEDs on module light up until buttons are released.
Reset stack	Press both right and left buttons together for 4 seconds. All LEDs on stack light up until buttons are released.
FIV	Force Initial Version – boot from backup initial version of the Avaya P330 software, from Bank A (see Note below).

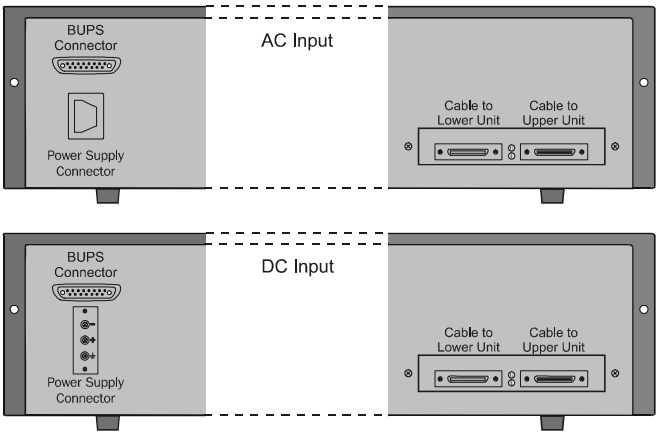
Note: To perform “Force Initial Version” reset the module and at the same time press the FIV reset button (use an opened paper clip or other pointed object). Release the reset buttons first and 1 or 2 seconds later, release the FIV button.

Note: The Port LEDs of the P332MF are numbered from 1-12. Expansion Module ports are numbered from 51. Port LED numbers 49-50 are reserved.

Avaya P330 Back Panel

The Avaya P330 back panel contains a stacking sub-module slot, power supply and BUPS connector. Figure 3.3 shows the back panel of the AC switch (top) and the DC switch (bottom) with a stacking sub-module installed.

Figure 3.3 Avaya P330 AC and DC Back Panels



Note: Further illustrations of the Avaya P330 Back Panel will be that of the AC model, the topmost panel in Figure 3.3.

Figure 3.3 shows the back panel of the AC switch (top) and the DC switch (bottom) with a stacking sub-module installed.

BUPS Input Connector

The BUPS input connector (see Figure 3.4) is a 5 VDC connector for use with the Avaya P330 BUPS unit only. A BUPS Input sticker appears directly to the right the BUPS input connector.

Figure 3.4 BUPS Input Connector Sticker

Installation and Setup

The Avaya P332MF is ready to work after you carry out the installation instructions given below. All the Avaya P332MF ports provide complete connectivity and no configuration is required to make the system work.

Installing the X330STK Stacking Sub-module in the P330

Caution: The stacking sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

To install the stacking sub-module in the Avaya P330:

1 Remove the blanking plate from the back of the Avaya P330 switch.
2 Insert the stacking sub-module gently into the slot, ensuring that the metal base plate is aligned with the guide rails.
The metal plate of the X330STK (and *not* the PCB) fits onto the guide rails.
3 Press the sub-module in firmly until it is completely inserted into the Avaya P330.
4 Gently tighten the two screws on the side panel of the stacking sub-module by turning them.

Note: The Avaya P330 switch must not be operated with the back-slot open; the stacking sub-module should be covered with the supplied blanking plate if necessary.

Positioning

Avaya P330 can be mounted alone or in a stack in a standard 19-inch equipment rack in a wiring closet or equipment room. Up to 10 units can be stacked in this way. When deciding where to position the unit, ensure that:

- It is accessible and cables can be connected easily and according to the configuration rule.
- Cabling is away from sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines and fluorescent lighting fixtures.
- Water or moisture cannot enter the case of the unit.
- There is a free flow of air around the unit and that the vents in the back and sides of the case are not blocked.

Note: Use Octaplane cables to interconnect with other switches.

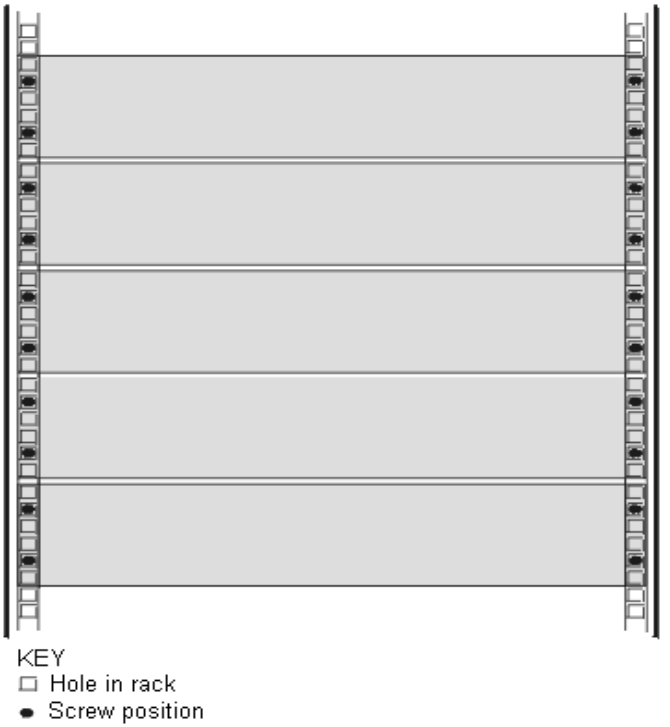
Rack Mounting

The Avaya P330 case fits in most standard 19-inch racks. Avaya P330 is 2U (88mm, 3.5”) high.

Place the Avaya P330 in the rack as follows:

1 Snap open the hinged ends of the front panel to reveal the fixing holes.
2 Insert the unit into the rack. Ensure that the four Avaya P330 screw holes are aligned with the rack hole positions as shown in Figure 4.1.

Figure 4.1 Avaya P330 Rack Mounting



3 Secure the unit in the rack using the screws. Use two screws on each side. Do not overtighten the screws.
4 Snap closed the hinged ends of the front panel.
5 Ensure that ventilation holes are not obstructed.

Connecting Stacked Switches

Note: The two ends of the Octaplane cable terminate with different connectors. Each connector can only be connected to its matching port.

The following cables are used to connect stacked switches:

- Short Octaplane cable (X330SC) – ivory-colored, used to connect adjacent switches (Catalog No. CB0223) or switches separated by a BUPS unit.
- Long / Extra Long Octaplane cable (X330LC / X330L-LC) – ivory-colored, used to connect switches from two different physical stacks, or switches separated by a BUPS unit (Catalog No. CB0225 / CB0270).
- Redundant / Long Redundant Octaplane cable (X330RC / X330L-RC) – black, used to connect the top and bottom switches of a stack (Catalog No. CB0222 / CB0269).

These are the same cables that are used with all P330 family modules.

To connect stacked switches:

Note: When adding a module to an existing stack, first connect the stacking cables and then power up the module.

1 Plug the light grey connector of the Short Octaplane cable into the port marked "to upper unit" of the bottom Avaya P330 switch.
2 Plug dark grey connector of same Short Octaplane cable to the port marked "to lower unit" in the unit above. The connections are illustrated in Figure 4.3.
3 Repeat Steps 1 and 2 until you reach the top switch in the stack.
4 If you wish to implement stack redundancy, use the Redundant Cable to connect the port marked "to lower unit" on the bottom switch to the port marked "to upper unit" on the top switch of the stack.
5 Power up the added modules.

Caution: Do not cross-connect two Avaya P330 switches with two Octaplane (light-colored) cables. If you wish to cross-connect for redundancy, use one light-colored Octaplane cable and one black redundancy cable. Figure 4.2 shows an incorrect connection.

Note: You can build a stack of up to 10 Avaya P330 switches. If you do not wish to stack all the switches in a single rack, use long Octaplane cables to connect two physical stacks as shown in Figure 4.3.

Figure 4.2 Incorrect Stack Connection

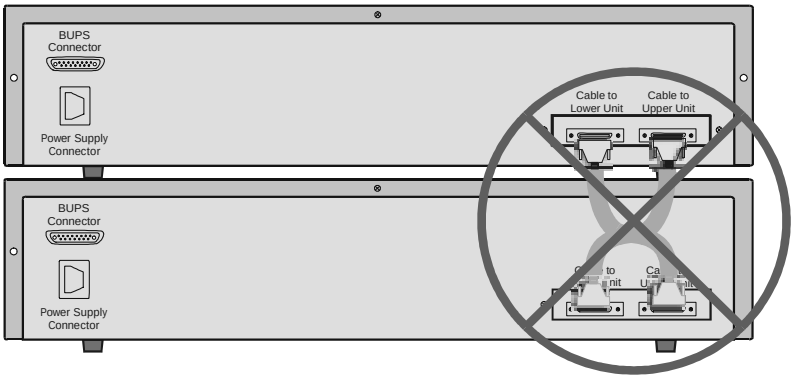
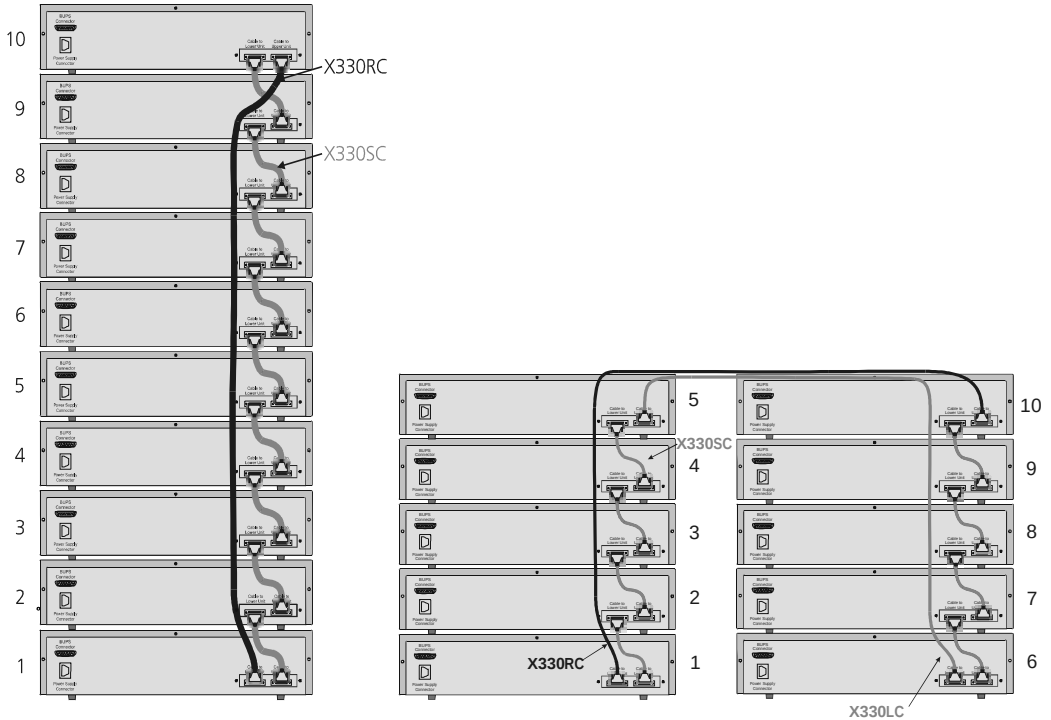


Figure 4.3 Avaya P330 Stack Connections



Installing Expansion Sub-modules

Caution: The expansion sub-modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Installing the Expansion Sub-module into the Avaya P330

1 Remove the blanking plate or other sub-module (if installed).
2 Insert the sub-module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
3 Firmly press the sub-module until it is completely inserted into the Avaya P330.
4 Gently tighten the two screws on the front panel of the expansion sub-module by turning them.

Removing an Existing Expansion Sub-module

1 Loosen the screws by turning the knobs.
2 Take hold of the two knobs (one near each side of the front panel) and pull gently but firmly towards yourself.
3 Insert another expansion sub-module or the blanking plate.

Note: If an expansion sub-module is removed from the stack with the power supply on, all configuration definitions on expansion sub-modules are lost. To remove an expansion sub-module and save configuration definitions:

1 Turn off the power supply.
2 Remove an expansion sub-module.
3 Insert another expansion sub-module.
4 Turn on the power supply.

Note: The Avaya P330 switch must not be operated with the expansion slot open; the expansion sub-module slot should be covered with the supplied blanking plate if necessary.

Powering On – Avaya P330 Module AC

For the AC input version of the Avaya P330, insert the AC power cord into the power inlet in the back of the unit. The unit powers up even if no direct AC power is applied to it.

1 If you are using a BUPS, insert a power cord from the BUPS into the BUPS connector in the back of the unit. The unit powers up.
2 After power up or reset, the Avaya P330 performs a self test procedure.

Powering On – Avaya P330 Module DC

For the DC input version of the Avaya P330, connect the power cable to the switch at the input terminal block.

1 The terminals are marked “+”, “-“ and with the IEC 5019a Ground symbol.
2 The size of the three screws in the terminal block is M3.5.
3 The pitch between each screw is 9.5mm.

Warning: Before performing any of the following procedures, ensure that DC power is OFF.

Caution: This product is intended for installation in restricted access areas and is approved for use with 18 AWG copper conductors only. The installation must comply with all applicable codes.

4 Connect the power cable to the DC power supply.

Warning: The proper wiring sequence is ground to ground, positive to positive and negative to negative. Always connect the ground wire first and disconnect it last.

Configuring the Switch

The Avaya P330 may be configured using the text-based Command Line Interface (CLI), the built-in Avaya P330 Device Manager (Embedded Web) or Avaya Multi-Service Network Manager™.

For instructions on the text-based utility, see the CLI chapter.

For instructions on installation of the graphical user interfaces, see the Avaya P330 Device Manager Appendix. For instructions on the use of the graphical user interfaces, refer to the Device Manager User's Guide on the Documentation and Utilities CD.

Avaya P330 Default Settings

The default settings for the Avaya P330 switch and its ports are determined by the Avaya P330 software. These default settings are subject to change in newer versions of the Avaya P330 software. See the Release Notes for the most up-to-date settings.

Table 4.1 Default Switch Settings

Function	Default Setting
IP address	149.49.32.134
Default gateway	0.0.0.0
VLANs	VLAN 1
Spanning tree	Enabled
Bridge priority for Spanning Tree	32768
Time server IP address	0.0.0.0
Timezone offset	0 hours
Read-only SNMP community string	Public
Read-write SNMP community string	Public
Trap SNMP community string	Public
SNMP retries number	3
SNMP timeout	2000 Seconds
SNMP authentication trap	Disabled
CLI timeout	15 Minutes
User Name / Password	root / root

Table 4.2 Default Port Settings

Function	Default Setting		
	10/100Base-TX ports	**100Base-F ports**	**1000 Base-X ports**
Duplex mode	Full duplex	Full duplex	Full duplex only
Port Speed	100M	100M	1000M
Flow control	Off	Off	Off
Flow control advertisement	Off	N / A	Off (No pause)
Backpressure	On (only in Half duplex)	Not Applicable	Not Applicable
Autopartitioning	Disabled (only in Half duplex)	N / A	N / A
Auto-negotiation	Enable	Not Applicable	Enable[1]
Administration status	Enable	Enable	Enable
Port VLAN	1	1	1
Tagging mode	Clear	Clear	Clear
Port priority	0	0	0
Spanning Tree cost	20	20	4
Spanning Tree port priority	128	128	128

1 Ensure that the other side is also set to Autonegotiation Enabled

Note: Functions operate in their default settings unless configured otherwise.

Cabling

Avaya P330 modules include the following types of ports (according to the speed and standard they support): 10Base-T, 100Base-TX, 100Base-FX, 1000Base-SX and 1000Base-LX.

Note: To interconnect Avaya P330 switches with twisted pairs, crossed cables are required.

- The maximum UTP cable length connected to a 10/100 Mbps port operating as 10Base-T, is 100 m (328 ft.).
- A UTP Category 5 cable must be connected to any 100Base-TX port, via an RJ45 connector. The maximum UTP cable length connected to a 10/100 Mbps port operating as 100Base-TX, is 100 m (328 ft.).
- A fiberoptic cable must be connected to any 100Base-FX port, via a pair of SC connectors. The maximum fiber cable length connected to a 100Base-FX port is 412 m (1,352 ft) when operating in half duplex, and 2 km (6,562 ft) when operating in full duplex.
- The maximum length of fiber optic cable connected to a 12 fiber MT-RJ port is 2 km (6,562 ft).

Appropriate cables are available from your local supplier.

Table 4.3 Gigabit Ethernet Cabling

Gigabit Interface	Fiber Type	Diameter (µm)	Modal Bandwidth (MhzKm)	Maximum Distance (m)	Minimum Distance (m)	Wavelength (nm)
1000BASE-SX	MM	62.5	160	220	2	850
1000BASE-SX	MM	62.5	200	275	2	850
1000BASE-SX	MM	50	400	500	2	850
1000BASE-SX	MM	50	500	550	2	850
1000BASE-LX	MM	62.5	500	550	2	1310
1000BASE-LX	MM	50	400	550	2	1310
1000BASE-LX	SM	9	NA	10,000	2	1310

Connecting the Console Cable

The Avaya P330 has one serial port on the front panel of the switch for connecting a terminal, a terminal emulator, or a modem.

The serial port on the front panel is labelled “Console” and has a RJ-45 connector. Connect the P330 to a terminal or a terminal emulator using the supplied console cable and the RJ-45 to DB-9 adaptor. To connect a modem, use the supplied cable and an RJ-45 to DB-25 adaptor.

Note: The cable and two adaptors can be found in the accessory set, and they are clearly marked.

Configuring the Terminal Serial Port Parameters

The serial port settings for using a terminal or terminal emulator are as follows:

- Baud Rate - 9600 bps
- Data Bits - 8 bits
- Parity - None
- Stop Bit - 1
- Flow Control - None
- Terminal Emulation - VT-100

Connecting a Modem to the Console Port

A PPP connection with a modem can be established only after the Avaya P330 is configured with an IP address and net-mask, and the PPP parameters used in the Avaya P330 are compatible with the modem’s PPP parameters.

1 Connect a terminal to the console port of the Avaya P330 switch as described in Connecting the Console Cable on page 29.

2 When you are prompted for a Login Name, enter the default name **`root`**.

3 When you are prompted for a password, enter the password **`root`**. You are now in Supervisor Level.

4 At the prompt, type:
`set interface ppp <``ip_addr><net-mask>`
with an IP address and netmask to be used by the Avaya P330 to connect via its PPP interface.

Note: The PPP interface configured with the `set interface ppp` command must be on a different subnet from the stack inband interface.

5 Set the baud rate, ppp authentication, and ppp time out required to match your modem. These commands are described in the "Command Line Interface" chapter.

6 At the prompt, type:
`set interface ppp enable`
The CLI responds with the following:
```
Entering the Modem mode within 60 seconds...
Please check that the proprietary modem cable is plugged
into the console port
```

7 Use the DB-25 to RJ-45 connector to plug the console cable to the modem's DB-25 connector. Plug the other end of the cable RJ-45 connector to the Avaya P330 console's RJ-45 port.

8 The Avaya P330 enters modem mode.

9 You can now dial into the switch from a remote station, and open a Telnet session to the PPP interface IP address.

Assigning P330's IP Stack Address

Note: All P330 switches are shipped with the same default IP address. You must change the IP address of the master P330 switch in a stack in order to guarantee that the stack has its own unique IP address in the network.

Use the CLI to assign the P330 stack an IP address and net mask. The network management station can establish communications with the stack once this address had been assigned and the stack has been inserted into the network.

To assign a P330 IP stack address:

1 Establish a serial connection by connecting a terminal to the Master P330 switch of the stack.

2 When prompted for a Login Name, enter the default name **`root`**

3 When you are prompted for a password, enter the password **`root.`** You are now in Supervisor Level.

4 At the prompt, type:
`set interface inband` `<vlan> <ip_address> <netmask>`
Replace `<vlan>`, `<ip_address>` and `<netmask>` with the VLAN, IP address and net mask of the stack.

5 Press Enter to save the IP address and net mask.

6 At the prompt, type **`reset`** and press Enter to reset the stack. After the Reset, log in again as described above.

7 At the prompt, type **`set ip route`** `<dest> <gateway>` and replace `<dest>` and `<gateway>` with the destination and gateway IP addresses.

8 Press Enter to save the destination and gateway IP addresses.

Chapter 5

Avaya CLI – Architecture, Access & Conventions

This chapter describes the Avaya P330 CLI architecture and conventions, and provides instructions for accessing the Avaya P330 for configuration purposes.

The configuration procedure involves establishing a Telnet session or a serial connection and then using the Avaya P330's internal CLI. The CLI is command-line driven and does not have any menus. To activate a configuration option, you must type the desired command at the prompt and press Enter. You can also configure your Avaya P330 using the P330 Manager with its graphical user interface. For details, see the Avaya P330 Device Manager Appendix and the Avaya Multi-Service Network Manager P330 Device Manager User's Guide on the Documentation and Utilities CD.

Establishing a Serial Connection

Perform the following steps to connect a terminal to the Avaya P330 Master Switch Console port for configuration of Stack or Router parameters:

1. Use the serial cable supplied to attach the RJ-45 console connector to the Console port of the Avaya P330 Master Switch. Connect the DB-9 connector to the serial (COM) port on your PC/terminal.
2. Ensure that the serial port settings on the terminal are 9600 baud, 8 bits, 1 stop bit and no parity.
3. When you are prompted for a Login Name, enter the default login. The default login is **`root`**.
4. When you are promoted for a password, enter the user level password **`root`**.
5. Now you can begin the configuration of Module or Stack parameters.

Establishing a Telnet Connection

Perform the following steps to establish a Telnet connection to the Avaya P330 for configuration of Stack or Router parameters. You can Telnet either the Stack Master IP address or directly to one of the Router IP address:

1 Connect your station to the network.

2 Verify that you can communicate with the Avaya P330 using Ping to the IP of the Avaya P330. If there is no response using Ping, check the IP address and default gateway of both the Avaya P330 and the station.

Note: The Avaya P330 default IP address is 149.49.32.134 and the default subnet mask is 255.255.255.0.

3 From the Microsoft Windows® taskbar of your PC click **Start** and then **Run** (or from the DOS prompt of your PC), then start the Telnet session by typing:
`telnet` *`<P330_IP_address>`*
For example: **`telnet 149.49.32.134`**

4 If the IP Address in Telnet command is the IP address of the stack, then connection is established with the Switch CLI entity of the Master module. If you want to connect to the Router CLI entity, use the session command. If the IP address in the Telnet command is of the router, connection is established to the Router CLI entity in the router module.

5 When you see the “Welcome to P330” menu and are prompted for a Login Name, enter the default name **`root`**

6 When you are prompted for a password, enter the User Level password **`root`** *or* **`norm`** in lower case letters (do NOT use uppercase letters). The User level prompt will appear when you have established communications with the Avaya P330.

Command Line Prompt

When you start the CLI, the initial prompt shows the number of the Master module in the Avaya P330 stack. For example, if the stack Master is Module 5, counting from the bottom up, then the prompt is:

`P330-5>`

In this document the Module number in the prompt is generic and is represented by "`N`".

If you wish to open a session with an Avaya P333R-LB routing module in the stack or reopen a session with the Master module, use the `session` command (see below).

The command prompt is *not* hierarchical in structure. If you wish to use several commands, each beginning with the same keyword, you must retype all parts of the command each time. For example, if after you want to set the system contact and the system name you must type both `set system contact` and `set system name`. However, you can use command abbreviations.

Avaya P330 Sessions

You can use sessions to switch between P330 modules or to switch between Layer 2 and Layer 3 commands in the P333R CLI.

To switch between P330 modules use the command:
`session [<mod_num>] <mode>`.

The <`mod_num`> is the number of the module in the stack, counting from the bottom up. The <`mode`> can be either **switch** or **router**. When Module Number is not specified, the command switches between the modes in the local module. Use **switch** mode to configure layer 2 commands. Use **router** mode to configure routing commands.

Examples:

To configure router parameters in the module that you are currently logged into, type the following command:

`session router`.

To configure the switch parameters, on module 6, type the command:
`session 6 switch`.

Note: When you use the `session` command the security level stays the same.

Security Levels

There are four security access levels – User, Privileged, Configure and Supervisor.

- The User level is a general access level used to show system parameter values.
- The Privileged level is used by site personnel to access stack configuration options.
- The Configure level is used by site personnel for Layer 3 configuration.
- The Supervisor level is used to define user names, passwords, and access levels of up to 10 local users.

A login name and password are always required to access the CLI and the commands. The login names and passwords, and security levels are established using the `username` command.

Switching between the entities, does not effect the security level since security levels are established specifically for each user. For example, if the operator with a privileged security level in the Switch entity switches to the Router entity the privileged security level is retained.

Entering the Supervisor Level

The Supervisor level is the level in which you first enter Cajun Campus CLI and establish user names for up to 10 local users. When you enter the Supervisor level, you are asked for a Login name. Type `root` as the Login name and the default password `root` (in lowercase letters):

```
Welcome to P330
Login: root
Password:****
Password accepted.
P330-N(super)#
```

Defining new users

Define new users and access levels using the `username` command in Supervisor Level. (see page 135).

Exiting the Supervisor Level

To exit the Supervisor level, type the command `exit`.

Entering the CLI

To enter the CLI, enter your username and password. Your access level is indicated in the prompt as follows:

The User level prompt is shown below:

```
P330-N>
```

The Privileged level prompt is shown below:

```
P330-N#
```

The Configure level prompt for Layer 3 configuration is shown below:

```
P330-N(configure)#
```

The Supervisor level prompt is shown below:

```
P330-N(super)#
```

Entering the Technician Level

This level is can only be accessed from the Privileged and Supervisor levels not from the User level.

This feature is not documented and is for use by Avaya Technical Support only.

Conventions Used

The following conventions are used in this chapter to convey instructions and information:

- Mandatory keywords are in boldface.
- Variables that you supply are in pointed brackets <>.
- Optional keywords are in square brackets [].
- Alternative but mandatory keywords are grouped in braces {} and separated by a vertical bar |.
- If you enter an alphanumeric string of two words or more, enclose the string in inverted commas.
- Information displayed on screen is displayed in `text` font.

Navigation, Cursor Movement and Shortcuts

The CLI contains a simple text editor with these functions:

Table 5.1 Navigation, Cursor Movement and Shortcuts

Keyboard	Functions
Backspace	Deletes the previous character
Up arrow / Down arrow	Scrolls back and forward through the command history buffer
Left arrow / Right arrow	Moves the cursor left or right
Tab	Completes the abbreviated command. Type the minimum number of characters unique to the command. An exception is the Reset System command which you must type in full.
Enter	Executes a single-line command
" "	If you type a name with quotation marks, the marks are ignored.

Getting Help

On-line help may be obtained at any time by typing a question mark (**?**), or the word **`help`** on the command line or by pressing the F1 key. To obtain help for a specific command, type the command followed by a space and a question mark. Example: `Router>` **`show?`**

Command Syntax

Commands are not case-sensitive. That is, uppercase and lowercase characters may be interchanged freely.

Command Abbreviations

All commands and parameters in the CLI can be truncated to an abbreviation of any length, as long as the abbreviation is not ambiguous. For example, `version` can be abbreviated `ver`.

For ambiguous commands, type the beginning letters on the command line and then use the Tab key to toggle through all the possible commands beginning with these letters.

Universal Commands

Universal commands are commands that can be issued anywhere in the hierarchical tree.

Top and Up commands

The `Up` command moves you up to the next highest level in the CLI command hierarchy. The `Top` command moves you to the highest level.

Retstatus command

Use the `retstatus` command to show whether the last CLI command you performed was successful. It displays the return status of the previous command.

The syntax for this command is: **`retstatus`**

Output Example:

```
P330 # set port negotiation 2/4 disable
Link negotiation protocol disabled on port 2/4.
```

Tree command

The `tree` command displays the commands that are available at your current location in the CLI hierarchy.

The syntax for this command is: **`tree`**

CLI – Layer 2

This chapter provides all the Layer 2 CLI commands, parameters and their default values.

The CLI is command-line driven and does not have any menus. To activate a configuration option, you must type the desired command at the prompt and press **Enter**.

Note: The terms “module” and “switch” are used interchangeably.

User Level Commands

This section describes all commands that are available from the User level.

Following is a table of the User Level commands and command groups (all commands are also available at the higher levels).

1 This command corresponds to a group of commands and is shown in a separate Table on Page 42.

session

Use the `session` command to open a session with a specific entity in a switch of the stack. For example, you can open a session with the Routing entity of a P332G-ML switch in the stack, or with an the X330 ATM sub-module entity plugged into a specific switch.

The syntax for this command is:

`session` `[<mod_num> [switch|router|atm|mgp|wan]]`

mod_num	(optional) The switch number. If you do not specify this parameter, you will get the default entity of the stack (Layer 2 session to the Master)
switch | router | atm | mgp | wan	(optional) The entity to which you want to open a session. If you do not specify this parameter, you will get the default entity of the specific module: `switch` - Layer 2 entity of the switch (see Note below). `router` - Routing entity. `atm` - ATM entity. `mgp` - Media Gateway Precessor. `wan` - WAN access router entity.

Note: Layer 2 commands are only available if you open a `switch` session with the Master switch.

Note: When you use the `session` command the security level stays the same.

terminal

Use the `terminal width` and `terminal length` commands to set the width and length of the terminal display in characters.

The syntax for this command is:

`terminal` `{width|length} [<characters>]`

clear screen

The clear screen command clears the current terminal display.

The syntax for this command is:

clear screen

ping

Use the ping command to send ICMP echo request packets to another node on the network.

The syntax for this command is:

ping [host[number]]

host	Host IP address / Internet address of route destination. If missing then the last host IP is used.
number	Number of packets to send. If missing, then the last number is used. If the last number is not available, the default is 4.

Note: You can use this command via the Master switch only.

Output Example:

To ping the IP number 149.49.48.1 four times:

```
P330-N> ping 149.49.48.1 4

PING 149.49.48.1: 56 data bytes
64 bytes from 149.49.48.1: icmp_seq=0. time=0. ms
64 bytes from 149.49.48.1: icmp_seq=1. time=0. ms
64 bytes from 149.49.48.1: icmp_seq=2. time=0. ms
P330-1(super)#  64 bytes from 149.49.48.1: icmp_seq=3. time=0. ms
----149.49.48.1 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 0/0/0
```

Show Commands Summary Table

Following is a table of the show commands:

• dir	Displays the file types that have been downloaded to the module.	Page 79

show time

Use the `show time` command to display the current stack time.

The syntax for this command is:

`show time`

Output Example:

```
P330-N> show time
10:32:34 27 JAN 2000 GMT
```

show timezone

Use the `show timezone` command to display the current stack timezone.

The syntax for this command is:

`show timezone`

Output Example:

```
P330-N> show timezone
Timezone set to 'GMT', offset from UTC is 0 hours
```

show time parameters

Use the `show time parameters` command to display the status and parameters.

The syntax for this command is:

`show time parameters`

Output Example:

```
P330-N> show time parameters
Current time: L:02:49:11 02 JAN 1999 isl
Timezone set to 'isl', offset from UTC is 2 hours
Time-Server: 0.0.0.0
Time acquired from Time-Server: 0.0.0.0
Time protocol set to: TIME protocol
```

show ip route

Use the `show ip route` command to display IP routing table entries.

The syntax for this command is:

`show ip route`

Output Example:

```
P330-N> show ip route

Destination    Gateway
------------   ------------
149.49.1.1     172.20.22.201
190.20.0.0     172.20.22.202
172.20.0.0     172.20.22.96
```

show image version

Use the `show image version` command to display the software version of the image on both memory banks of a specified switch.

The syntax for this command is:

`show image version` [<mod_num>]

If no switch number is specified, the image version of the all switches will be displayed.

Output Example:

```
P330-N> show image version 1
Mod     Module-Type                                  Bank  Version
------  -----------                                  ----  --------
1       24x10/100Base-T with optional expansion slot   A    3.3.14
1       24x10/100Base-T with optional expansion slot   B    3.5.19
```

show download status

Use the `show download status` command to display a summary of the last software download operation.

The syntax for this command is:

`show download status` [slot]

Output Example:

```
P330-1(super)# sh download status 1
Mod   Bank   Download State  Activity Status   Download Size
----- ------ --------------- ---------------- ---------------
1.    Bank B   idle          Download idle      0

Mod   Version   Host          File
----- --------- ------------- ------------------
1.    3.5.18    149.49.70.61 d:\p340sw\gt-ml\3.5.18\p332gt_ml
```

Note: This command is only supported by the P332G-ML and P332GT-ML switches.

show snmp

Use the `show snmp` command to display SNMP information.

The syntax for this command is:

`show snmp`

Output Example:

```
P330-N> show snmp
Authentication trap disabled
Community-Access     Community-String
---------------      ---------------
read-only            public
read-write           public
trap                 public
Trap-Rec-Address     Traps Enabled
---------------      ---------------
1.1.1.1              config
                     fault
                     etc...
```

show snmp retries

Use the `show snmp retries` command to display the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

`show snmp retries`

Output Example:

```
P330-N> show snmp retries
the SNMP Retries Number is 3
```

show snmp timeout

Use the `show snmp timeout` command to display the default SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

`show snmp timeout`

Output Example:

```
P330-N> show snmp timeout
the SNMP Timeout is 2000
```

show timeout

Use the `show timeout` command to display the amount of time the CLI can remain idle before timing out in minutes. If the result is 0, there is no timeout limit. The default is 15 minutes.

The syntax for this command is:

`show timeout`

Output Example:

```
P330-N> show timeout
CLI timeout is 10 minutes
```

show logout

Use the `show logout` command to display the amount of time the CLI can remain idle before timing out in minutes. If the result is 0, there is no timeout limit. The default is 15 minutes.

The syntax for this command is:

show logout

Output Example:

```
P330-N> show logout
CLI timeout is 10 minutes
```

show interface

Use the `show interface` command to display information on network interfaces.

The syntax for this command is:

show interface

Output Example:

To display the interface:

```
P330-N> show interface
Interface Name  VLAN    IP address          Netmask
--------------  ----  ---------------  ---------------
inband          1     10.0.0.1         255.255.255.0
ppp disable     1     0.0.0.0          0.0.0.0
```

show device-mode

Use the `show device-mode` command to show the P332G-ML / P332GT-ML / P333R / P333R-LB operating mode you are currently in. Possible modes are Router, or Switch.

Note: This command is not supported by the P333T / P334T / P332MF / P333T-PWR switches which do not have Router mode.

The syntax for this command is:

show device-mode

show port

Use the `show port` command to display port status.

The syntax for this command is:

`show port` [<mod_num>[/<port_num>]]

mod_num	(Optional) Number of the switch. If you do not specify a number, the ports on all switches are shown.
port_num	(Optional) Number of the port on the switch. If you do not specify a number, all the ports on the switch are shown. You can also specify a range of ports separated by a dash, e.g., 5-13 for ports 5 to 13.

Output Example:

To display the status for port 4 on switch 3:

```
P330-N> show port 3/4
Port   Name     Status     Vlan  Level   Neg      Dup.  Spd.  Type
------ -------  ---------  ----  ------  -------  ----  ----  -------------
 3/4   John     connected   1     4      enable   half  10M   100/1000Base-Tx
```

Show Port Output Fields

Field	Description
Port	Switch and port number
Name	The name you assigned to the port
Status	Status of the port (connected, no link, disabled, no Rmt Lnk)
VLAN	VLAN ID of the port
Level	Priority level of the port (0-7)
Neg	The autonegotiation status of the port (enable, disable)
Duplex	Duplex setting for the port (fdx, hdx)
Speed	Speed setting for the port (10, 100)

Type	Port type, for example: For the P332-ML and P332GT-ML switches - 100BaseT, 1000BaseT, 1000BaseS. For the P333T / P334T / P332MF / P333R / P333R-LB switches - 10BaseT, 10BaseFL, 100BaseTX, 100BaseFX MM, 100BaseFX SM, 10 / 100BaseTX.

show port trap

Use the `show port trap` command to display information on SNMP generic link up / down traps sent for a specific port.

The syntax for this command is:

`show port trap` `[<mod_num>[/<port_num>]]`

Output Example:

```
P330-N> show port trap 1/1
Port 1/1 up/down trap is disabled
```

show port channel

Use the `show port channel` command to display Link Aggregation Group (LAG) information for a specific switch or port.

The syntax for this command is:

`show port channel` `[<mod_num>[/<port_num>]]`

Output Example:

```
show port channel 1
Port   Channel Status  Channel Name
------ -------------- --------------------------------
 1/1      off
 1/2      off
 1/3      on           server1
 1/4      on           server1
------ -------------- --------------------------------
 1/5      off
 etc...
```

show port classification

Use the `show port classification` command to display a port's classification.

The syntax for this command is:

`show port classification` `[module/[port]`

module/port	The switch number/the port number

Output Example:

```
P330-1(super)# show port classification
Port   Port Classification
------ --------------------
1/1    regular
1/2    regular
1/3    regular
1/4    regular
1/5    regular
1/6    regular
1/7    regular
etc...
```

show port redundancy

Use the `show port redundancy` command to display information about all redundancy schemes defined for this stack.

The syntax for this command is:

`show port redundancy`

Output Example:

```
P330-N> show port redundancy
Redundancy Name     Primary Port        Secondary Port      Status
-----------------   -------------       ---------------     --------
uplink                1/7                    2/12           enable
```

show intermodule port redundancy

Use the `show intermodule redundancy` command to display the intermodule redundancy entry defined for the stack.

The syntax for this command is:

`show intermodule port redundancy`

Output Example:

```
P330-N> show intermodule port redundancy
Primary-Port                : 1/1
Primary-Port status         : Disable
Secondary-Port              : 1/2
Secondary-Port status       : Disable
```

show port mirror

Use the `show port mirror` command to display mirroring information for the stack.

The syntax for this command is:

`show port mirror` [<mod_num>[/<port_num>]]

Output Example:

```
P330-N> show port mirror
port mirroring
Mirroring both Rx and Tx packets from port 1/2 to port 1/4 is
enabled
```

show port vlan-binding-mode

Use the `show port vlan-binding-mode` command to display port vlan binding mode information.

The syntax for this command is:

`show port vlan-binding-mode` [module[/port]]

module / port	The switch number / the port number

Output Example:

```
P330-N> show port vlan-binding-mode
port 1/1 is statically bound
port 1/2 is statically bound
port 1/3 is statically bound
port 1/4 is statically bound
port 1/5 is statically bound
port 1/6 is statically bound
port 1/7 is statically bound
port 1/8 is statically bound
port 1/9 is statically bound
port 1/10 is statically bound
```

show port security

Use the `show port security` command to list the security mode of the ports of a switch or stack. When no port number is specified, this command displays all the secured ports in the stack.

The syntax for this command is:

`show port security` [<module>[/<port>]]

Example:

```
P330-N> show port security 1
Port 1/1 port security disabled.
Port 1/2 port security disabled.
Port 1/3 port security disabled.
Port 1/4 port security disabled.
Port 1/5 port security disabled.
etc.
```

Note: Port security for the P330-ML switches will always have the value `unknown`. This command is used to display the security status for the other P330 switches in the stack.

show port blocking

Use the `show port blocking` command to display the port blocking mode on a particular switch. Use the `session` command to change switches before using this command.

The `show port blocking` command is used with the `show self-loop discovery` command to confirm a port's blocking mode.

The syntax for this command is:

`show port blocking`

Note: This command is not supported by the P330-ML switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

Output Example:

```
P330-N>  show port blocking
+--------------------+
| Port |  Blk /Fwd   |
+--------------------+
|    1 | Blocking    |
|    2 | Blocking    |
|    3 | Blocking    |
|    4 | Blocking    |
|    5 | Blocking    |
|    6 | Blocking    |
|    7 | Blocking    |
|    8 | Blocking    |
|    9 | Blocking    |
|   10 | Blocking    |
|   11 | Blocking    |
|   12 | Forwarding  |
|   13 | Blocking    |
|   14 | Blocking    |
|   15 | Blocking    |
|   16 | Blocking    |
|   17 | Blocking    |
|   18 | Blocking    |
|   19 | Blocking    |
|   20 | Blocking    |
|   21 | Blocking    |
|   22 | Blocking    |
|   23 | Blocking    |
|   24 | Forwarding  |
+--------------------+
```

show port self-loop-discovery

Use the `show port self-loop-discovery` command to display which port or switch has an enabled IBM™ token ring cable loop discovery status.

Note: This command is not supported by the P330-ML switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

The syntax for this command is:

`show port self-loop-discovery` `[module num/port number]`

Output Example:

```
P330-N> show port self-loop-discovery 1/5
Self-Loop-Discovery is enabled on port 1/5.
```

show internal buffering

The `show internal buffering` command displays the size options (Maximum, Minimum, or Medium) of the Receive (Rx) buffer allocated to each port of the specified switch.

The syntax for this command is:

`show internal buffering` `[<mod_num>]`

Output Example:

```
P330-N> show internal buffering 1
Module  Internal Buffer
------  ---------------
  1          med
```

Note: Internal buffering for the P330-ML switches will always have the value `Not supported`. This command is used to display the internal buffering status for the other P330 switches in the stack.

show boot bank

Use the `show boot bank` command to display the software bank from which the switch will boot at the next boot process. This command should be issued separately for each switch in the stack using the `session` command.

Note: This command is not supported by the P333R and P333R-LB switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

The syntax for this command is:

`show boot bank`

Output Example:

```
show boot bank
Boot bank set to bank-a
```

show module

Use the `show module` command to display switch status and information. For each switch with an expansion sub-module installed, both switch and expansion sub-module type and information are shown.

The syntax for this command is:

`show module` [<mod_num>]

mod_num	(Optional) Number of the switch / expansion sub-module. If you do not specify a number, all switches / expansion sub-modules are shown.

Output Example:

```
P330-N> show port flowcontrol 3/2
Mod       Type          C/S     S/N      Statuses
--- ------------------  ----  --------  ---------------------------
 1  P333T               1.0   4144162   PS:OK Fans:OK Mode:Layer2
    X330GT2             2.0
    P330STK             2.0             Conn-Up:Fail Conn-Down:Ok
    BUPS                                BUPS:Not Prsnt Fans:None Type:None

 2  P333T-PWR           3.0   4455428   PS:OK Fans:OK Mode:Layer2
```

```
No Expansion                        Not Present
P330STK              2.2            Conn-Up:Ok Conn-Down:Ok
BUPS                                BUPS:Not Prsnt Fans:None Type:None
```

Output Fields

Field	Description
Mod	Switch number
Type	Module Type / Expansion sub-module type
S / N	Serial number of the switch
C / S	(Hardware) Configuration Symbol of the module / expansion sub-module
Statuses	Status of the module / expansion sub-module

show port flowcontrol

Use the `show port flowcontrol` command to display per-port status information related to flow control.

The syntax for this command is:

`show port flowcontrol` `[<mod_num>[/<port_num>]]`

Output Example:

```
P330-N> show port flowcontrol 3/2
Port   Send-Flowcontrol Receive-Flowcontrol
       Admin Oper       Admin Oper
------ ----- ----       ----- ----
 3/2   off   off        off   off
```

Output Fields

Field	Description
Port	Switch and port number
Send-Flowcontrol-Admin	Send flow-control administration. Possible settings: • ON indicates that the local port is allowed to send flow control frames to the far end. • OFF indicates that the local port is *not* allowed to send flow control frames to the far end.
Send-Flowcontrol-Oper	Send flow-control operation mode. Possible modes: • ON indicates that the local port will send flow control frames to the far end. • OFF indicates that the local port will *not* send flow control frames to the far end.
Receive-Flowcontrol-Admin	Receive flow-control administration. Possible settings: • ON indicates that the local port will act upon flow control indications if received from the far end. • OFF indicates that the local port will discard flow control frames if received from the far end.
Receive-Flowcontrol-Oper	Receive flow-control operation mode. Possible modes: • ON indicates that the local port will act upon flow control indications received from the far end. • OFF indicates that the local port will discard flow control frames received from the far end.

show cam

Use the `show cam` commands to display the CAM table entries for a specific port.

Note: MACs associated with LAGs appear under the LAG ID, not under the LAG port.

The syntax for this command is:

`show cam` `[mac mac-addr]/[module[/port]]`

Output Example:

```
P330-N> show cam 1/1
Dest MAC/Route Dest Destination Ports
------------------- -----------------
00-40-0d-59-03-78   1/1
00-d0-79-0a-0a-da   1/1
00-40-0d-43-1e-e9   1/1
etc...
```

Output Example:

```
P330-N> show cam mac 00-40-0d-88-06-c8
Dest MAC/Route Dest Destination Ports
------------------- -----------------
00-40-0d-88-06-c8    1/1
Total Matching CAM Entries Displayed = 1
```

show cascading fault-monitoring

Use the `show cascading fault-monitoring` command to display the status of the fault trap sending mode for cascading links.

The syntax for this command is:

`show cascading fault-monitoring` `[<mod_num>]`

Output Example:

```
P330-N> show cascading fault-monitoring 1
Module 1 cascading-down fault monitoring enabled.
Module 1 cascading-up fault monitoring enabled.
```

show port auto-negotiation-flowcontrol-advertisement

Use the `show port auto-negotiation-flowcontrol-advertisement` command to display the flowcontrol advertisement for a Gigabit port used to perform auto-negotiation.

The syntax for this command is:

`show port auto-negotiation-flowcontrol-advertisement` `[<mod_num>[/<port_num>]]`

mod_num	Number of the switch
port num	Number of the port

Output Example:

```
P330-N> show port auto-negotiation-flowcontrol-advertisement
Port 1/1  advertises no flow control capabilities.
Port 1/2  advertises no flow control capabilities.
Port 1/3  advertises no flow control capabilities.
etc.
```

show trunk

Use the `show trunk` command to display VLAN tagging information of the ports, port binding mode, and the port VLAN ID.

The syntax for this command is:

`show trunk` `[<mod_num>[/<port_num>]]`

Output Example:

```
P330-N> show trunk
Port    Mode    Binding mode                    Native vlan
------  -----   ----------------------------  -----------
 1/1   dot1q  bound to configured vlans    1
 1/2   dot1q  bound to all vlans           1
 1/3   off    statically bound             1
 1/4   off    statically bound             1
 1/5   off    statically bound             1
```

Output Example:

```
P330-N> show trunk 1/5
Port   Mode  Binding mode    Native vlan Vlans allowed on trunk
------ ----- -------------- ----------- ----------------------
 1/5   off   statically bound     1       1
```

Output Fields:

Field	Description
Port	Switch and port number(s)
Mode	Tag status of the port (dot1q - dot1Q tagging mode, off - clear mode).
Binding mode	Binding mode of the port
Native VLAN	Number of the Port VLAN ID (the VLAN to which received untagged traffic will be assigned).
VLANs allowed on trunk	Range of VLAN values allowed on the port.

show vlan

Use the `show vlan` command to display the VLANs configured in the stack / switch.

The syntax for this command is:

`show vlan`

Output Example:

```
P330-N> show vlan
VLAN ID Vlan-name
------- --------------------------------
1       v1
5       V5
10      V10
15      V15
20      V20
25      V25
```

show leaky-vlan

Use the `show leaky-vlan` command to display the leaky VLAN status.

The syntax for this command is:

`show leaky-vlan`

Output Example:

```
P330-N> show leaky-vlan
Leaky VLAN mode Disable
```

show spantree

Use the `show spantree` command to display spanning-tree information.

The syntax for this command is:

`show spantree` [<mod_num>[/<port_num>]]

Output Example:

```
P330-N> show spantree
Spanning tree enabled
Designated Root:  00-40-0d-88-06-c8
Designated Root Priority: 32768
Designated Root Cost: 20
Designated Root Port: 1/1
Root Max Age: 20   Hello Time: 2

Bridge ID MAC ADDR: 00-40-0d-92-04-b4
Bridge ID priority: 32768

Port   State         Cost       Priority
------ ------------- ---------- ------------
1 /1   Forwarding    20         128
1 /2   not-connected 20         128
1 /3   LAG-member    20         128
1 /4   LAG-member    20         128
1 /5   not-connected 20         128
1 /6   not-connected 20         128
etc...
```

Output Fields:

Field	Description
Spanning tree	Status of whether Spanning-Tree Protocol is enabled or disabled
Designated Root	MAC address of the designated spanning-tree root bridge
Designated Root Priority	Priority of the designated root bridge
Designated Root Cost	Total path cost to reach the root
Designated Root Port	Port through which the root bridge can be reached (shown only on nonroot bridges)
Root Max Age	Amount of time a BPDU packet should be considered valid
Hello Time	Number of times the root bridge sends BPDUs
Bridge ID MAC ADDR	Bridge MAC address used in the sent BPDUs
Bridge ID Priority	Bridge priority
Port	Port number
State	Spanning-tree port state (disabled, inactive, not-connected, blocking, listening, learning, forwarding, bridging, or type-pvid-inconsistent)
Cost	Cost associated with the port
Priority	Priority associated with the port

show autopartition

Use the `show autopartition` command to display the automatic partition.

Note: Autopartition for the P330-ML switches will always have the value `disabled`. This command is used to display the autopartition status for the other P330 switches in the stack.

The syntax for this command is:

`show autopartition` `[module]`

Example:

```
P330-N> show autopartition 1
 Mod     Mode
--- -----------
 1    Enable
```

show dev log file

Use the `show dev log file` command to display the encrypted device's log file.

Note: This command is only supported by the P330-ML switches.

The syntax for this command is:

`show dev log file`

show log

Use the `show log` command to display an encrypted device's reset log. This command is for Avaya technical support use.

The syntax for this command is:

`show log` `[module]`

Output Example:

```
P330-1(super)# show log 1
MODULE 1, MESSAGE 01:
00000000 0 05002966 0205 0 0 0 0 0 0 0 0 0 0
MODULE 1, MESSAGE 02:
```

```
00000000 0 00004242 0205 0 0 0 0 0 0 0 0 0 0
MODULE 1, MESSAGE 03:
00000000 0 00002395 0205 0 0 0 0 0 0 0 0 0 0
```

show module-identity

Use the `show module identity` command to display the switch identity required for acquiring a license.

The syntax for this command is:

`show module-identity` [module]

Output Example:

`show module-identity [module]`

```
P330-1(super)# show module-identity
Mod   Module Identity
---   ---------------
 1       1234567
 2       4144162
```

show license

Use the `show license` command to display a switch license.

The syntax for this command is:

`show license` [mod_num]

`mod_num` The switch number

Output Example:

```
P330-N> show license 1
P330-N> Module 1 License:
Mod      Application             License Key            State    Feature Flag
--- ------------------ ---------------------------- ---------- ------------
 1         smon         0000 0000 0000 0000 0000 0000  licensed       1
```

show system

Use the `show system` command to display the up time, system name, location, and contact person.

The syntax for this command is:

`show system`

Output Example:

```
P330-N> show system
Uptime d,h:m:s
------------------------
0,2:40:55

System Name           System Location           System Contact
--------------------- ------------------------- -------------------------
P332_version-3.0.5    Alpha LAB                 Ygdal Naouri

Switch MAC address
------------------
00 40 0d 8a 04 b4
```

RMON Tools

The following are a series of RMON commands, however we recommend using the P330 Device Manager.

show rmon statistics

Use the `show rmon statistics` command to show the RMON statistics counters for a certain interface number according to the MIB-2 interface table numbering scheme.

The syntax for this command is:

`show rmon statistics` `<module/port>`

module / port range of ports (the default is `full switch`)

Output Example:

```
P330-1(super)# show rmon statistics
Statistics for switch is active, owned by Monitor
Received 171665151 octets, 1474442 packets,
1030346 broadcast and 369540 multicast packets,
0 undersize and 0 oversize packets,
1 fragments and 0 jabbers,
11 CRC alignment errors and 0 collisions,
# of dropped packet events (due to a lack of resources): 0
# of packets received of length (in octets):
64:862274, 65-127:973110, 128-255:173921,
256-511:72880, 512-1023:4374, 1024-1518:29744,
```

show rmon history

Use the `show rmon history` command to show the most recent RMON history log for a given History Index. The history index is defined using the `rmon history` command on Page 126 or using an RMON management tool.

The syntax for this command is:

`show rmon history` [<History Index>]

```
P330-N> show rmon history 1026
history
Entry 1026 is active, owned by amir
Monitors ifEntry.1.1026 every 30 seconds
Requested # of time intervals, ie buckets, is 20
Granted # of time intervals, ie buckets, is 20
Sample # 1 began measuring at 2:53:9
Received 62545 octets, 642 packets,
391 broadcast and 145 multicast packets,
0 undersize and 0 oversize packets,
0 fragments and 0 jabbers,
0 CRC alignment errors and 0 collisions,
# of dropped packet events (due to a lack of resources): 0
Network utilization is estimated at 0
```

show rmon alarm

Use the `show rmon alarm` command to show the parameters set for a specific alarm entry that was set using the rmon alarm command on Page 127 or using the P330 Device Manager.

The syntax for this command is:

`show rmon alarm` [<Alarm Index>]

Output Example:

```
P330-N> show rmon alarm 1026
alarm
alarm 1026 is active, owned by amir
Monitors ifEntry.1.1026 every 60 seconds
Taking delta samples, last value was 1712
Rising threshold is 10000, assigned to event # 1054
Falling threshold is 10, assigned to event # 1054
On startup enable rising or_falling alarms
```

show rmon event

Use the `show rmon event` command to show the parameters of an Event entry defined by the rmon event command on Page 128 or using the P330 Device Manager.

The syntax for this command is:

`show rmon event` `[<Event Index>]`

Output Example:

```
P330-N> show rmon event 1054
event

Event 1054 is active, owned by amir
Description is event for monitoring amir's co
Event firing causes log and trap to community public,last
fired 0:0:0
```

show ppp session

Use the `show ppp session` command to display PPP parameters and statistics of a currently active PPP session.

The syntax for this command is:

`show ppp session`

Example:

```
P330-N> show ppp session
```

show ppp authentication

Use the `ppp authentication` command to see the authentication method used for PPP sessions.

The syntax for this command is:

`show ppp authentication`

Output Example:

```
P330-N> show ppp authentication
PPP Authentication Parameters:
------------------------------
Incoming:       CHAP
```

show ppp incoming timeout

Use the `ppp incoming timeout` command to see the amount of time in minutes that a PPP session can remain idle before being automatically disconnected.

The syntax for this command is:

`show ppp incoming timeout`

Output Example:

```
P330-N> show ppp incoming timeout
PPP incoming timeout is 10 minutes
```

show ppp baud-rate

Use the `show ppp baud-rate` command to display the set baud-rate.

The syntax for this command is:

`show ppp baud-rate`

Output Example:

```
P330-N> show ppp baud-rate
PPP baud rate is 38400
```

show ppp configuration

Use the `show ppp configuration` command to display the ppp configuration

The syntax for this command is:

`show ppp configuration`

Output Example:

```
P330-N> show ppp configuration
PPP baud rate is 38400
PPP incoming timeout is 0 minutes
PPP Authentication Parameters:
------------------------------
Incoming:       None
```

show tftp download/upload status

Use the `show tftp download status` and `show tftp upload status` commands to display the status of the current TFTP configuration file copy process into / from the device.

The syntax for this command is:

`show tftp` {download|upload} **`status`** [<mod_num>]

Output Example:

```
P330-N> show tftp upload status 1
Module           : 1
Source file      : stack-config
Destination file : c:\conf.cfg
Host             : 149.49.36.200
Running state    : Executing
Failure display  : (null)
Last warning     : No-warning
```

show tftp download software status

Use the `show tftp download software status` commands to display the status of the current TFTP Device Manager S / W (Embedded Web) download process into the device.

The syntax for this command is:

`show tftp download software status` [<mod_num>]

Output Example:

```
P330-1(super)# show tftp download software status
Module #1
===========
Module           : 1
Source file      : d:\p340sw\gt-ml\3.5.18\p340.web
Destination file : EW_Archive
Host             : 149.49.70.61
Running state    : Writing ...
Failure display  : (null)
Last warning     : No-warning
```

show web aux-files-url

Use the `show web aux-files-url` command to display the URL / Directory from where the P330 can access the Device Management auxiliary files (for example help files).

The syntax for this command is:

`show web aux-files-url`

show intelligent-multicast

Use the `show intelligent-multicast` command to display the intelligent multicast configuration.

The syntax for this command is:

`show intelligent-multicast`

Output Example:

```
P330-N> show intelligent-multicast
Intelligent-multicast configuration:
------------------------------------
intelligent-multicast state ---------------------- Disabled
Intelligent-multicast client-port-pruning time --- 600[Sec]
Intelligent-multicast router-port-pruning time ---1800[Sec]
intelligent-multicast group-filtering-delay time -  10[Sec]
Intelligent-multicast HW configuration:
#  Module           Sub-Module            Cascade
   -------          ----------            --------
1 No IPMc Support   Not Installed        No IPMc Support
```

show intelligent-multicast hardware-support

Use the `show intelligent-multicast hardware-support` command to display the intelligent multicast hardware support configuration.

The syntax for this command is:

`show intelligent-multicast hardware-support`

Output Example:

```
P330-N> show intelligent-multicast hardware support
Intelligent-multicast HW configuration:
#  Module         Sub-Module            Cascade
   -------        ----------            --------
1 Support IPMc   Not Installed         Support IPMc
```

show security mode

Use the `show security mode` command to display the status of the MAC security feature.

Note: Layer 2 commands are only available if you open a `switch` session with the Master switch.

The syntax for this command is:

`show security mode`

Output Example:

```
P330-N> show security mode
Security mode enabled.
```

show secure mac port

Use the `show secure mac port` command to display the secure MAC addresses of a port from the sub-agent CLI. This command is accessed only through connection to a particular switch.

Note: This command is not supported by the P330-ML switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

The syntax for this command is:

`show secure mac port` `[<module>[/port]]`

Output Example:

```
P330-N> show secure mac port 1
Port    Secure-Src-Addrs
------  -----------------
 1/17   00-50-04-07-6a-fa
        01-02-03-04-05-06
```

show arp-tx-interval

Use the `show arp-tx-interval` command to display the keep-alive frames transmission interval.

The syntax for this command is:

`show arp-tx-interval`

Output Example:

```
P330-N> show arp-tx-interval
ARP tx interval is set to 5 seconds.
```

show arp-aging-interval

Use the `show arp-aging-interval` command to display the ARP table aging interval for gateways' entries.

The syntax for this command is:

show arp-aging-interval

Output Example:

```
P330-N> show arp-aging-interval
ARP table aging interval for gateways was set to 10 minutes.
```

show self-loop-discovery

Use the show self-loop-discovery command to display a switch's IBM token ring cable discovery status.

Note: This command is not supported by the P330-ML switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

The syntax for this command is:

```
show self-loop-discovery [mod_num]
```

Output Example:

```
P330-N> show self-loop-discovery 1
Self-Loop-Discovery is disabled on module 1.
```

show allowed managers status

Use the `show allowed managers status` command to display the activation status of the Allowed Managers feature. When this feature is enabled, only those stations whose IP addresses are listed in the Allowed Managers table can access the device over Telnet, SNMP, or HTTP.

The syntax for this command is:

show allowed managers status

Output Example:

```
P330-N> show allowed managers status
Managers are disabled.
```

show allowed managers table

Use the `show allowed managers table` command show the list of the twenty possible allowed managers IP addresses.

`show allowed managers table`

Output Example:

```
P330-N> show allowed managers status
1 ) 149.49.32.134
2 ) Not Used
3 ) Not Used
4 ) Not Used
5 ) Not Used
6 ) Not Used
7 ) Not Used
8 ) Not Used
9 ) Not Used
10) Not Used
11) Not Used
12) Not Used
13) Not Used
14) Not Used
15) Not Used
16) Not Used
17) Not Used
18) Not Used
19) Not Used
20) Not Used
```

dir

Use the `dir` command to show the file types that have been downloaded to the switch.

The syntax for this command is:

`dir` `[<mod_num>]`

Output Example:

```
P330-N> dir
M# file           ver num  file type     file location  file description
-- ----           -------- ----------    -------------  ---------------
1  Booter_Image    3.5.17   SW BootImage  Nv-Ram         Booter Image
1  module-config   N/A      Running Conf  Ram            Module Configuration
1  stack-config    N/A      Running Conf  Ram            Stack Configuration
1  EW_Archive      N/A      SW Web Image  Nv-Ram         Web Download
2  Booter_Image    3.2.5    SW BootImage  Nv-Ram         Booter Image
2  module-config   N/A      Running Conf  Ram            Module Configuration
2  EW_Archive      N/A      SW Web Image  Nv-Ram         Web Download
```

Output Fields:

Field	Description
M#	The switch number
file	There are several files loaded into the switch's memory: • module-config – file which contains the configuration settings made to this switch • stack-config – file which contains the configuration settings made at the stack level (for example IP address of the stack) • EW_Archive – file which contains the Device Manager (Embedded Web) software
ver num	S/W Version number – relevant only for the Device Management S/W
file type	There are several file types: • Running Conf – the configuration currently in use and the startup configuration in the P330-ML, P333R and P333R-LB. • SW Web Image – Device Manager S/W archive file
file location	Type of internal memory into which the file is loaded
file description	Description of the file

Note: If the N/A is displayed for the EW_Archive file, this means that the Device Manager S/W is not loaded correctly. Download the Device Manager S/W again.

Privileged Level Commands

Following is a table of the Privileged Level commands. This level includes all the commands from the User Level described above (see the User Level Commands Section for a description of these common commands).

• no hostname	Returns the prompt to its default.	Page 82
• no rmon history	Deletes an existing history entry.	Page 82
• no rmon alarm	Deletes an existing alarm entry.	Page 82
• no rmon event	Deletes an existing event entry.	Page 83
• hostname	Displays or sets a new prompt.	Page 83
• clear[1]	Clears current settings (a group of commands).	Page 83
• set[2]	Sets the switch parameters (a group of commands).	Page 88
• sync time	Synchronizes the time between switches.	Page 118
• get time	Gets the time from the time server.	Page 123
• reset	Restarts the system or a switch.	Page 124
• reset stack	Causes a hardware reset to the stack.	Page 124
• reset mgp	Causes a software reset to the Media Gateway Processor.	Page 124
• nvram initialize	Initializes the NVRAM to its factory defaults.	Page 125
• rmon history	Creates a history entry.	Page 126
• rmon alarm	Creates an alarm entry.	Page 127
• rmon event	Creates an event entry.	Page 128
• copy stack-config tftp	Uploads stack configuration to a file (using TFTP). The file must exist before you Upload.	Page 128
• copy module-config tftp	Uploads switch configuration to a file (using TFTP). The file must exist before you Upload.	Page 129
• copy tftp stack-config	Downloads a stack configuration file (using TFTP) into the device.	Page 130

• copy tftp module-config	Downloads a switch configuration file (using TFTP).	Page 130
• copy tftp EW_Archive	Downloads the Device Manager S/W (Embedded Web Archive file), using TFTP, into the device.	Page 131
• copy tftp SW_image	Updates the software image and device manager application of a designated switch.	Page 131
• radius authentication[3]	Sets radius authentication parameters.	Page 132

1 The `clear` command corresponds to a group of commands and is shown in a separate Table on Page 83.
2 The `set` command corresponds to a group of commands and is shown in a separate Table on Page 88.
3 The `radius authentication` commands corresponds to a group of commands listed on Page 132.

no hostname

Use the `no hostname` command to return the CLI prompt to its default.

The syntax for this command is:

`no hostname`

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

no rmon history

Use the `no rmon history` command to delete an existing RMON history entry.

The syntax for this command is:

`no rmon history` `<History Index>`

no rmon alarm

Use the `no rmon alarm` command to delete an existing RMON alarm entry.

The syntax for this command is:

`no rmon alarm` `<Alarm Index>`

no rmon event

Use the `no rmon event` command to delete an existing RMON event entry.

The syntax for this command is:

`no rmon event` `<Event Index>`

hostname

Use the `hostname` command to change the Command Line Interface (CLI) prompt. The current switch number always appears at the end of the prompt.

The syntax for this command is:

`hostname` `[<hostname_string>]`

hostname_string	**none** – displays current hostname **string** – the string to be used as the hostname (up to 20 characters).

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

Clear Commands Summary Table

Following is a Table of the Privileged Level `clear` commands.

clear timezone

Returns the timezone to its default, Coordinated Universal Time (UTC)

The syntax for this command is:

clear timezone

clear ip route

Use the `clear ip route` command to delete IP routing table entries.

The syntax for this command is:

clear ip route <destination> <gateway>

destination	IP address of the network, or specific host to be added
gateway	IP address of the router

Output Example:

To delete the route table entries using the clear ip route command:

```
P330-N# clear ip route 134.12.3.0 192.1.1.1
Route deleted.
```

clear snmp trap

Use the `clear snmp trap` command to clear an entry from the SNMP trap receiver table.

The syntax for this command is:

clear snmp trap {<rcvr_addr>|all}

rcvr_addr	IP address or IP alias of the trap receiver (the SNMP management station) to clear
all	Keyword that specifies every entry in the SNMP trap receiver table

Output Example:

```
P330-N# clear snmp trap 192.122.173.82
SNMP trap receiver deleted.
```

clear vlan

Use the `clear vlan` command to delete an existing VLAN and return ports from this VLAN to the default VLAN #1. When you clear a VLAN, all ports assigned to that VLAN are assigned to the default VLAN #1.

The syntax for this command is:

`clear vlan` `<vlan-id>[`**`name`** `<vlan_name>]`

vlan_id	Number of the VLAN (range is 1to 3071)
vlan_name	VLAN name

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

Output Example:

To delete an existing VLAN (VLAN 5) from a management domain:

```
P330-N# clear vlan 5 name V5
This command will assign all ports on vlan 5 to their default
in the entire management domain
 - do you want to continue (Y/N)?  y
All ports on vlan-id 5 assigned to default vlan.
VLAN 5 was deleted successfully.
```

clear dynamic vlans

Use the `clear dynamic vlans` command to clear dynamic vlans. Only the VLANs learned by the switch from incoming traffic are cleared using this command.

The syntax for this command is:

`clear dynamic vlans`

Output Example:

```
P330-N# clear dynamic vlans
This command will delete all the vlans that were dynamically
learned by the device - do you want to continue (Y/N)?
```

clear port static-vlan

Use the `clear port static-vlan` command to delete VLANs statically configured on a port.

The syntax for this command is:

`clear port static-vlan` `[module/port range][vlan num]`

module/port range	Port range
vlan num	The VLAN to unbind from the port

Output Example:

```
P330-1(super)# clear port static-vlan 1/10 5
VLAN 5 is unbound from port 1/10
```

clear cam

Use the `clear cam` command to delete all entries from the CAM table.

The syntax for this command is:

`clear cam`

Output Example:

```
P330-N# clear cam
CAM table entry cleared.
```

clear log

Use the `clear log` command to delete the Log file of a switch.

The syntax for this command is:

`clear log` `[<mod_num>]`

clear port mirror

Use the `clear port mirror` command to cancel port mirroring.

The syntax for this command is:

`clear port mirror` `<source-module>/<source-port>/<dest-module>/<dest-port>`

Output Example:

```
P330-N# clear port mirror 1/2/1/4
this command will delete the port mirror entry
 - do you want to continue (Y/N)?  y
Mirroring packets from port 1/2 to port 1/4 is cleared
```

clear secure mac

Use the `clear secure mac` command to remove a MAC address from the CAM table of a secured port.

Note: This command is not supported by the P330-ML switches.

The syntax for this command is:

`clear secure mac` <mac-address> **`port`** <mod-num>/<port-num>

Output Example:

```
P330-N> clear secure mac 1-2-3-4-5 port 1/17
01-02-03-04-05 cleared from secure address list for port 1/17
```

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

Set Commands Summary Table

Following is a Table of the Privileged Level `set` commands.

• set intelligent-multicast router-port-pruning time	Sets the aging time for router ports.	Page 119
• set intelligent-multicast group-filtering-delay time	Sets the time delay before a filter is applied to a specific group.	Page 119
• set secure mac	Adds a unicast MAC address into the CAM table of a secured port.	Page 119
• set security mode	Enables or disables the stack's MAC security.	Page 120
• set arp-aging-interval	Sets the ARP aging interval.	Page 120
• set arp-tx-interval	Sets the keep-alive interval.	Page 120
• set self-loop-discovery Admin_Status	Sets the IBM token ring discovery mode.	Page 121
• set welcome message	Sets a welcome message to appear after a reboot.	Page 121
• set allowed managers enabled / disabled	Enables / disables the Allowed Managers feature.	Page 122
• set allowed managers IP	Used to add or remove an IP address from the allowed managers table.	Page 122
• set psu type	Sets the main power supply type (AC / DC) of the module.	Page 122

set logout

The `set logout` command is used to set the number of minutes until the system automatically disconnects an idle session.

The syntax for this command is:

`set logout` `<timeout>`

timeout	Number of minutes (0 to 999) until the system automatically disconnects an idle session. Setting the value to 0 disables the automatic disconnection of idle sessions (default is 15 minutes).

Output Example:

To set the number of minutes until the system disconnects an idle session

automatically:

```
P330-N# set logout 20
Sessions will be automatically logged out after 20 minutes of
idle time.
```

Output Example:

To disable the automatic disconnection of idle sessions:

```
P330-N# set logout 0
Sessions will not be automatically logged out.
```

set timezone

Use the `set timezone` command to assign a timezone name and set the time difference of your P330 relative to the Coordinated Universal Time (UTC / GMT). The minutes parameter can only be set to 30.

The syntax for this command is:

`set timezone` `<zone_name> <hours | hours:min>`

Output Example:

```
set timezone GMT -3:30
Timezone set to 'GMT', offset from UTC is -3:30 hours
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set time protocol

Use the set time protocol command to set the protocol for use in the system as either SNTP protocol or TIME protocol.

The syntax for this command is:

`set time protocol` `[sntp-protocol|time-protocol]`

Output Example:

```
P330-N# set time protocol sntp-protocol
The protocol has been set to SNTP protocol
```

Output Example:

```
P330-N#  set time protocol time-protocol
```

```
The protocol has been set to TIME protocol
```

set time server

The `set time server` command is used to set the TIME server address.

The syntax for this command is:

`set time server` `<ip>`

ip	IP address of the TIME server.

set time client

The `set time client` command is used to enable or disable the periodic network time acquisition by the switch from the network time server (SNTP or TIME protocol).

The syntax for this command is:

`set time client` `<enable|disable>`

set ip route

Use the `set ip route` command to add IP addresses to the IP routing table. You can configure from one to ten (10) default gateways for a P330 stack.

The syntax for this command is:

`set ip route` `<destination> <gateway>`

destination	IP address of the network, or specific host to be added
gateway	IP address of the router

Output Example:

This example shows how to add a default route to the IP routing table:

```
P330-N# set ip route 0.0.0.0 192.168.1.1
destination = 0.0.0.0  gateway = 192.168.1.1

ROUTE NET TABLE
destination      gateway          flags  Refcnt  Use           Interface
------------------------------------------------------------------------
0.0.0.0          192.168.1.1      1      1       3199          se0
127.1.1.0        127.1.1.1        1      8       7606          se1
------------------------------------------------------------------------
```

```
ROUTE HOST TABLE
destination      gateway          flags  Refcnt  Use           Interface
-------------------------------------------------------------------------
127.0.0.1        127.0.0.1        5      2       131           lo0
10.10.10.10      192.168.1.1      7      0       0             se0
-------------------------------------------------------------------------
```

set snmp community

Use the `set snmp community` command to set or modify the switch's SNMP community strings.

The syntax for this command is:

`set snmp community` `<access_type> [community string]`

access type	read-only, read-write, or trap

Output Example:

```
P330-1(super)# set snmp community read-only read
SNMP read-only community string set
```

set snmp trap

Use the `set snmp trap` commands to add an entry into the SNMP trap receiver table and to enable or disable the different SNMP traps for a specific receiver. First add the `rcvr_addr` and then enable / disable the different traps for it.

The syntax for this command is:

`set snmp trap` `<rcvr_addr>`

`set snmp trap` `<rcvr_addr> {enable|disable} {all|config|fault|...}`

enable	Activate SNMP traps
disable	Deactivate SNMP traps
all	(Optional) Specify all trap types
config	(Optional) Specify the ConfigChange trap from the TRAP-MIB.
fault	(Optional) Specify the Fault trap from the TRAP-MIB.
rcvr_addr	IP address or IP alias of the system to receive SNMP traps

Output Example:

To enable SNMP ConfigChange traps to a specific manager:

```
P330-N# set snmp trap 192.168.173.42 enable config
SNMP config change traps enabled.
```

Output Example:

To enable all traps to a specific manager:

```
P330-N# set snmp trap 192.168.173.42 enable all
All SNMP traps enabled.
```

Output Example:

To disable SNMP config traps to a specific manager:

```
P330-N# set snmp trap 192.168.173.42 disable config
SNMP config traps disabled.
```

Output Example:

To add an entry in the SNMP trap receiver table with default:

```
P330-N# set snmp trap 192.168.173.42
SNMP trap receiver added.
```

set snmp trap auth

Use the `set snmp trap auth` commands to enable / disable the sending of SNMP traps upon SNMP authentication failure.

The syntax for this command is:

`set snmp trap` {enable|disable} **`auth`**

Output Example:

```
P330-N# set snmp trap enable auth
Authentication trap enabled
```

set snmp retries

Use the `set snmp retries` command to set the number of retries initiated by the Device Manager application when it tries to send SNMP messages to the device.

The syntax for this command is:

`set snmp retries` <number>

set snmp timeout

Use the `set snmp timeout` command to set the SNMP timeout in seconds. This command is useful for access using the Device Manager.

The syntax for this command is:

`set snmp timeout` `<number>`

set system location

Use the `set system location` command to set the mib2 system location MIB variable.

The syntax for this command is:

`set system location` `[<string>]`

string	Location name. The location name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Operations Floor”.

set system name

Use the `set system name` command to set mib2 system name MIB variable.

The syntax for this command is:

`set system name` `[<string>]`

string	System name. The system name is cleared if this field is left blank. A string of 2 words or more must be type in quotation marks – e.g. “Backbone Stack”.

set system contact

Use the `set system contact` command to set mib2 system contact MIB variable.

The syntax for this command is:

`set system contact` `[<string>]`

string	Contact person. The contact person field is cleared if this field is blank. A string of 2 words or more must be type in quotation marks – e.g. “Yigdal Naouri”.

set device-mode

Use the `set device-mode` command to change the Basic Mode of Operation of the P332-ML / P332GT-ML / P333R / P333R-LB switches between Router and Layer 2 modes.

Note: This command is not supported by the P333T / P334T / P332MF switches which do not have Router mode.

The syntax for this command is:

`set device-mode` `<mode>`

mode	Router | Layer2

set interface

Use the `set interface` command to configure the management interface on the Master agent of the stack.

The syntax for this command is:

`set interface inband` `<vlan> <ip_addr> <netmask>`

inband	Interface name used for the management
vlan	The number of the VLAN to be used for management
ip_addr	IP address used for managing the stack
netmask	Subnet mask of the management interface

Output Example:

```
P330-N# set interface inband 1 192.168.42.252 255.255.255.0
Interface inband IP address set.
You must reset the device in order for the change to take effect.
```

set interface ppp

Use the set interface ppp command to configure the P330 PPP interface IP parameters, exit modem mode, disconnect the PPP session, or reset the connected modem.

A PPP connection can be established only after the P330 is configured with an IP address and net-mask. The IP address is a dummy address that is shared between two peers, and must be taken from a subnet that is different from the agent's IP subnet.

The syntax for this command is:

set interface ppp <ip_addr><net-mask>

ip_addr	IP address used by the P330 to connect via its PPP interface
net-mask	Subnet mask used by the P330 to connect via its PPP interface

Output Example:

```
P330-N> set interface ppp 149.49.34.125 255.255.255.0
Interface ppp has its ip address set
```

You can also use the `set interface ppp` command to enter modem mode, enter terminal mode, disconnect the PPP session or to reset the connected modem.

The syntax for this command is:

set interface ppp {enable|enable-always|disable|off|reset}

enable	Enable PPP and enter modem mode.
enable-always	Enable automatic reentry into modem mode after modem cable disconnection or reconnection.
disable	Disable PPP and enter terminal mode
off	Disconnect the active PPP session.
reset	Reset the connected modem.

Output Example:

```
P330-N> set interface ppp reset
PPP has reset the connected modem.
```

Output Example:

```
P330-N# set interface ppp enable
Entering the Modem mode within 60 seconds...
Please check that the proprietary modem cable is plugged into
the console port
```

Output Example:

```
P330-N# set interface ppp disable
Entering the Terminal mode immediately
```

set port level

Use the `set port level` command to set the priority level of a port. Untagged (without an 802.1p priority header) packets travelling through ports set with priority 0-3 will be served only *after* packets traveling through ports set with priority 4-7 in case of congestion. Packets arriving with an 802.1p priority header will not be modified by this command.

The syntax for this command is:

`set port level` `<mod_num>/<port_num> {value}`

value	Priority level (0-7)

Output Example:

To set the priority level for port 2 on module 1 to 7:

```
P330-N# set port level 1/2 7
Port 1/2 port level set to 7
```

set port negotiation

Use the `set port negotiation` command to enable or disable autonegotiation on a port. If autonegotiation is disabled, you can set port parameters using the relevant CLI commands. If autonegotiation is enabled, these commands have no effect. For Fiber Gigbit Ethernet ports it can determine the flow control (pause) mode only.

Note: Copper ports in the P332GT-ML can work at 1000Mbps (Full Duplex) only if autonegotiation is enabled on both cable ends and you are using a 4 pair (8 wires) Ethernet cable. If autonegotiation is disabled, these ports can only work at 100Mbps (Full Duplex), and autonegotiation should be disabled on both cable ends.

The syntax for this command is:

set port negotiation <mod_num>/<port_num> {enable|disable}

Output Example:

To disable autonegotiation on port 1, module 4:

```
P330-N# set port negotiation 4/1 disable
Link negotiation protocol disabled on port 4/1.
```

set port enable

Use the `set port enable` command to enable a port or a range of ports.

The syntax for this command is:

set port enable [mod_num/port_num]

mod _num	The switch number
port_num	The port number

Output Example:

To enable port 3 on module 2:

```
P330-N# set port enable 2/3
Port 2/3 enabled.
```

set port disable

Use the `set port disable` command to disable a port.

The syntax for this command is:

set port disable <mod_num>/<port_num>

Output Example:

```
P330-N# set port disable 5/10
Port 5/10 disabled.
```

set port speed

Use the `set port speed` command to configure the speed of a 10/100Base-T port. If autonegotiation mode is enabled for such ports, the port's speed is determined by autonegotiation, and an error message is thus generated if you attempt to perform the `set port speed` command in this case.

Note: This command does not apply to P332G-ML and P332GT-ML ports. An error message is generated if you attempt to perform the `set port speed` command for P332G-ML and P332GT-ML ports.

The syntax for this command is:

`set port speed` `<mod_num>/<port_num> {value}`

Output Example:

To configure port 2 on module 2 port speed to 10 Mbps:

```
P330-N# set port speed 2/2 10MB
Port 2/2 speed set to 10 Mbps.
```

set port duplex

Use the `set port duplex` command to configure the duplex mode of a 10/100Base-T port. You can configure the duplex mode to either Half or Full duplex. If autonegotiation mode is enabled for such ports, the port's duplex mode is determined by autonegotiation, and an error message is thus generated if you attempt to perform the `set port duplex` command in this case.

Note: P332G-ML and P332GT-ML switch ports work in Full duplex mode only. An error message is generated if you attempt to change P332G-ML and P332GT-ML ports to `half-duplex`.

The syntax for this command is:

`set port duplex` `<mod_num>/<port_num> {full|half}`

Example:

To set port 1 on module 2 to full duplex:

```
P330-N# set port duplex 2/1 full
Port 2/1 set to full-duplex.
```

set port name

Use the `set port` name to configure a name for a port. If you do not specify a name, the port name remains empty.

The syntax for this command is:

`set port name` `<mod_num>/<port_num> [<name>]`

name	Name assigned to the port.

Output Example:

```
P330-N# set port name 1/2 arthur
Port 1/2 name set.
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set port trap

Use the `set port trap` command to enable / disable generic SNMP uplink / downlink traps from a port.

The syntax for this command is:

`set port trap` `<mod_num>/<port_num> {enable|disable}`

Output Example:

```
P330-N# set port trap 1/2 enable
Port 1/2 up/down trap enabled.
```

set port vlan

Use the `set port vlan` command to set the Port's VLAN ID (PVID). The VLAN number must be within the range 1 to 3071.

The syntax for this command is:

`set port vlan` `<value> <mod_num>/<port_num>`

value	Number between 1 and 3071, identifying the VLAN.
mod_num / port_num	The switch number / the port number.

Output Example:

To set VLAN 850 to include ports 4 through 7 on module 3.

```
P330-N# set port vlan 850 3/4-7
VLAN 850 modified.
VLAN  Mod/Ports
---- ----------------------
850   3/4-7
```

set port vlan-binding-mode

Use the `set port vlan-binding-mode` command to define the binding method used by ports.

The syntax for this command is:

`set port vlan-binding-mode` `[port_list] [value]`

port list	Switches and ports to bundle (format: switch / port)
value	**static** - the port supports only the VLAN as configured per port **bind-to-configured** - the port supports the VLANs configured on the device **bind-to-all** - the port support the whole range of VLANs on the device

Output Example:

```
P330-N# set port vlan-binding-mode 1/5-9 static
Set Port vlan binding method:1/5
Set Port vlan binding method:1/6
.
.
```

set port static-vlan

Use the `set port static-vlan` command to statically assign VLANs to ports.

The syntax for this command is:

`set port static-vlan` `[module/port range] [vlan num]`

`[module/port]` - port range

`{vlan range]` - vlan to bind to port

Example:

```
P330-N# set port static-vlan 1/4-6 9
```

set port self-loop-discovery Admin_Status

Use the `set port self-loop-discovery Admin_Status` command to enable or disable a port's IBM token ring discovery mode. The port's self-loop-discovery feature is activated only after you enable the self-loop-discovery mode at the module level using the `set self-loop-discovery Admin_status` command.

Note: This command is not supported by the P330-ML switches.

The syntax for this command is:

`set port self-loop-discovery Admin_Status` `<enable|disable> <module/port>`

Output Example:

```
P330-N# set port self-loop-discovery Admin_Status enable 1/2
Self-Loop-Discovery enabled on port 1/2.
```

set port channel

Use the `set port channel` command to enable or disable a Link Aggregation Group (LAG) interface on the switch. LAG creation requires a LAG name to be specified. There is no default name.

You can also add or remove a port from an existing LAG. When adding or removing a port to an existing LAG, type the same LAG-name. All ports in the LAG are configured with the parameters of the first port that is added to the LAG. These parameters include port administrative status, speed, duplex, autonegociation mode, VLAN ID, tagging mode, binding mode, and priority level.

The ports added to a LAG must belong to the same LAG group - refer to the "LAG" marking on device's front panel.

The syntax for this command is:

`set port channel` `[port_list] [value] [name]`

port_list	Switch and ports to bundle (format: module / port)
value	on / off to enable / disable a channel for the specified module ports

name	Channel name

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

Output Example:

```
P330-1(super)# set port channel 1/1-3 on test
Port 1/1 channel mode set to on
Port 1/2 was added to channel
Port 1/3 was added to channel
```

set port classification

Use the `set port classification` command to set the port classification to either regular or valuable. Any change in the Spanning Tree state from Forwarding for a valuable port will erase all learnt MAC addresses in the stack.

The syntax for this command is:

`set port classification` `[module/port] {regular | valuable}`

module port	switch / port range
regular | valuable	port classification

Output Example:

```
P330-1(super)# set port classification 2/19 valuable
Port 2/19 classification has been changed.
```

set port redundancy on/off

Use the `set port redundancy` command to define / delete port redundancy schemes between a Primary and a Secondary link. There should not be any redundancy scheme already defined on any of the links.

The syntax for this command is:

`set port redundancy` `<mod_num>/<prim_port_num> <mod_num>/ <second_port_num> {on/off} [<redundancy_name>]`

prim_port_num	Primary link of the redundancy scheme
second_port_num	Secondary link of the redundancy scheme
redundancy_name	Name for the redundancy scheme (optional)

Output Example:

```
P330-N# set port redundancy 1/7 2/12 on red1
uplink: Port 2/12 is redundant to port 1/7.
Port redundancy is active - entry is effective immediately
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set port redundancy

Use the `set port redundancy` commands to activate or disable all defined port redundancy schemes within the stack. This command will not delete existing port redundancy entries. A port redundancy scheme is removed once the switch containing either its primary or secondary ports is removed from the stack.

Note: You must disable Spanning Tree before you can enable redundancy.

The syntax for this command is:

`set port redundancy` `{enable|disable}`

Output Example:

```
P330-N# set port redundancy enable
All redundancy schemes are now enabled
```

set internal buffering

The `set internal buffering` command allows you to set the size (either Maximum or Minimum) of the Receive (Rx) buffer allocated to each port of the specified switch. This command is meaningless when any port of the switch is operating with flow control ON.

Note: This command is not supported by P332G-ML and P332GT-ML switches.

The syntax for this command is:

`set internal buffering` `<mod_num> {max|med|min}`

max	Sets the internal receive buffer to its maximum size.
med	Sets the internal receive buffer capacity dynamically
min	Sets the internal receive buffer to its minimum size (this is the Default).

Example:

```
P330-N> set internal buffering 1 max
Done.
```

set boot bank

Use the `set boot bank` command to configure the software bank from which the switch will boot at the next boot process. This command should be issued separately for each switch in the stack using the `session` command.

Note: This command is not supported by the P333R and P333R-LB switches.

Note: If this command is to be implemented on a switch other than the stack master, a session should be opened to the relevant switch.

The syntax for this command is:

`set boot bank` `<value>`

value	{bank-a | bank-b}

Output Example:

```
P330-1(super)# set boot bank bank-a
Boot bank set to bank-a
```

set intermodule port redundancy

Use the `set intermodule port redundancy` command to define or delete the stack's unique intermodule redundancy scheme. The defined scheme can be cleared using the `set intermodule port redundancy off command`.

The syntax for this command is:

`set intermodule port redundancy` `<module/prim-port> <module/second-port> {on [<name>]}`

module/prim-port	The primary port number
module/second-port	The secondary port number
on	Set the intermodule redundancy
name	The name of the fast redundancy (default is 'fast')

Output Example:

```
P330-N> set intermodule port redundancy 1/7 2/12 on backbone
backbone: port 2/12 is intermodule redundant to port 1/7
```

Note: You must disable Spanning Tree before you can enable redundancy.

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set intermodule port redundancy off

Use the `set intermodule port redundancy off` command to clear the intermodule redundancy scheme.

The syntax for this command is:

`set intermodule port redundancy off`

set port mirror

Use the `set port mirror` command to define a port mirroring source-destination pair in the stack.

The syntax for this command is:

`set port mirror source-port` <mod_num>/<port_num> **`mirror-port`** <mod_num>/<port_num> **`sampling`** {always|disable} **`direction`** {rx|tx|both}

always	Keyword to activate the port mirroring entry
disable	Keyword to change the status of the port mirroring entry to “not active”
rx	Keyword to copy only incoming traffic
tx	Keyword to copy only outgoing traffic
both	Keyword to copy both incoming and outgoing traffic

Output Example:

```
P330-N# set port mirror source-port 1/9 mirror-port 1/10
sampling always direction both
Mirroring both Rx and Tx packets from port 1/9 to port 1/10 is
enabled
```

set port spantree

Use the `set port spantree` command to enable or disable the spanning tree mode for specific switch ports.

The syntax for this command is:

`set port spantree` {enable|disable} [module/port]

enable	disable	Enables or disables the spanning tree mode for the specified ports.
module / port	The switch / port number.

Output Example:

Enable the spanning tree mode for port 2 on module 3.

```
P330-N# set port spantree enable 3/2
```

set port spantree priority

Use the `set port spantree priority` command to set the priority level of a port. This value defines the priority of a port to be blocked in case two ports with the same costs cause a loop.

The syntax for this command is:

`set port spantree priority` `[module/port] [value]`

module/port	The switch number/the port number.
value	Number representing the priority of the port. The priority level is from 0 to 255, with 0 indicating high priority and 255 indicating low priority. A port with a lower priority will be blocked.

set port spantree cost

Use the `set port spantree cost` command to set the cost of a port. This value defines which port will be allowed to forward traffic if two ports with different costs cause a loop.

The syntax for this command is:

`set port spantree cost` `[module/port] [value]`

module/port	The switch number/the port number.
value	Number representing the cost. The cost level is set from 1 to 65535. A lower cost (lower value) specifies precedence of a port to forward traffic.

set port security

Use the `set port security` command to enable MAC security on a port or a range of ports at the module level. The port security is activated only after you enable the secutity mode at the stack level using the `set security mode` command.

Note: This command is not supported in P332G-ML and P332GT-ML switches. This command is used to set port security for ports in other P330 switches in the stack.

The syntax for this command is:

`set port security` `{ enable | disable } [<module>[/<port>]]`

enable | disable	Set the port security enable or disable
module / port	The switch number / the port number

Output Example:

```
P330-N> set port security enable 1/2
Port 1/2 secured.
```

set cascading

Use the `set cascading` command to enable or disable fault-trap sending for unconnected cascading links. The default setting is disable.

The syntax for this command is:

`set cascading``{up|down}`**`fault-monitoring`** `{enable|disable} <mod-num>`

Output Example:

```
P330-N# set cascading down fault-monitoring enable 1
Module 1 cascading-down fault monitoring enabled.
```

set inband vlan

Use the `set inband vlan` command to set a value for the management vlan (from 1 to 3071).

The syntax for this command is:

set inband vlan <value>

value	A VLAN number between 1 and 3071.

Output Example:

```
P330-N# set inband vlan 1
Management VLAN number set to 1
```

set vlan

Use the `set vlan` command to create VLANs.

The syntax for this command is:

set vlan <vlan-id> [name <vlan-name>]

vlan-id	vlan number
vlan-name	vlan name

Output Example:

```
P330-N# set vlan 3 name v3
VLAN ID 3 is named v3.
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set port flowcontrol

Use the `set port flowcontrol` command to set the send/receive mode for flow-control frames (IEEE 802.3x or proprietary) for a full duplex port. Each direction (send or receive) can be configured separately only for Gigabit Ethernet ports. Proprietary flow control cannot be configured on Gigabit ports. The `set flowcontrol` command cannot be used on Gigabit ports for which autonegotiation is enabled.

The syntax for this command is:

set flowcontrol [direction] [module/port] [value]

where the parameters of `direction` are `receive|send|all`, and the parameters of `value` are `on|off|proprietary`.

Field	Description
receive	Controls the receipt of IEEE802.3x flow-control frames on Gigabit ports only: • ON indicates that the local port will act upon flow control frames received from the far end. • OFF indicates that the local port will discard flow control frames received from the far end.
send	Controls the sending of IEEE802.3x flow-control frames from Gigabit ports only: • ON indicates that the local port is allowed to send flow control frames to the far end. • OFF indicates that the local port is *not* allowed to send flow control frames to the far end.
all	Controls the sending and receipt of flow-control frames for any type of ports: • ON indicates that the local port will both act upon and send IEEE802.3x flow control frames. • OFF indicates that the local port will both discard and not send flow control frames (of any type). • PROPRIETARY indicates that the local port will both act upon and send Avaya proprietary flow control frames.
proprietary	A proprietary flow control which may be used when a P330 is connected to M770 10/100 ports or P110 ports.
module/ port	Switch number/port number

Output Example:

```
P330-1(super)# set port flowcontrol all 2/20 on
Port 2/20 flow control administration status set to on
```

set port auto-negotiation-flowcontrol-advertisement

The `set port auto-negotiation-flowcontrol-advertisement` command sets the flowcontrol advertisement for a Gigabit port when performing autonegotiation.

The syntax for this command is:

`set port auto-negotiation-flowcontrol-advertisement` `<mod_num>/<port_num> {no-flowcontrol|asym-tx-only|sym-only|sym-and-asym-rx}`

no-flowcontrol	The port will advertise no pause capabilities.
asym-tx-only	The port will advertise asymmetric Tx pause capabilities only.
sym-only	The port will advertise symmetric pause capabilities only.
sym-and-asym-rx	The port will advertise both symmetric and asymmetric Rx pause capabilities.

Output Example:

```
P330-N#  set port auto-negotiation-flowcontrol-advertisement
1/5 asym-tx-only
P330-N# Port 1/5 pause capabilities was set
```

set trunk

Use the `set trunk` command to configure the tagging mode of a post.

`set trunk` `[module/port] [value]`

module/port	module/port number
value	off/dot1q

Output Example:

```
P330-1(super)# set trunk 2/20 dot1q
Dot1Q VLAN tagging set on port 2/20.
```

set leaky-vlan

Use the set leaky-vlan command to define the P330 stack's leaky VLAN mode. In this mode, VLAN test is done only on broadcast / multicast / unknown frames, and not on unicast frames.

The syntax for this command is:

set leaky-vlan <enable|disable>

Output Example:

```
P330-N# set leaky-vlan enable
Leaky VLAN mode enabled
```

set spantree

Use the `set spantree` command to enable / disable the spanning-tree protocol for the stack.

Note: When you disable STP, blocking ports are disabled in order to prevent loops in the network. As a result, you *should* wait 30 seconds before disabling STP if you reset the switch, enabled STP, or inserted a new station.

The syntax for this command is:

set spantree {enable|disable}

Output Example:

```
P330-N# set spantree enable
bridge spanning tree enabled.
```

set spantree priority

Use the `set spantree priority` command to set the bridge priority for STP.

The syntax for this command is:

set spantree priority <value>

value	Number representing the priority of the bridge with a priority level from 0 to 65535, with 0 indicating high priority and 65535 indicating low priority.

Example:

To set the priority to 45000:

```
P330-N# set spantree priority 45000
Priority enabled
```

set autopartition

Use the `set autopartition` command to enable or disable auto-partitioning on specific switches of the stack.

Note: This command can not be executed on the P332G-ML and P332GT-ML switches. This command is used to set the autopartition status for the other P330 switches in the stack.

The syntax for this command is:

`set autopartition` `<enable|disable>[module]`

Output Example:

```
P330-N# set autopartition enable 3
Auto-partition is enabled in module 3.
```

set license

The `set license` command enables you to activate the SMON / routing capability of the Avaya P330 stack. An Avaya P330 stack can include several Avaya P330 switches. One SMON / routing license is required per Avaya P330 stack.

For a full description of the SMON / routing License and the installation procedure please refer to the Installation Guide provided with the SMON / routing License.

The syntax for this command is:

`set license` `[module] [license] [featureName]`

module	The switch number
license	The license number
featureName	The name of the feature, either `smon` or `routing`

Example:

```
P330-N> set license 1 021 1ad bad ca5 8d2 ccd smon
```

set ppp authentication incoming

Use the `set ppp authentication incoming` command to define the authentication method used for a PPP server or client session.

The syntax for this command is:

`set ppp authentication incoming` `{pap|chap|none}`

pap	PAP authentication method
chap	CHAP authentication method
none	No authentication

Example:

```
P330-N(super)# set ppp authentication incoming chap
```

set ppp incoming timeout

Use the `set ppp incoming timeout` command to configure the number of minutes until the system automatically disconnects an idle PPP incoming session.

The syntax for this command is:

`set ppp incoming timeout` `<time>`

time	The timeout in minutes

Output Example:

```
P330-N> set ppp incoming timeout 15
PPP incoming session will automatically disconnect after 15
minutes of idle time
```

set ppp baud-rate

Use the set ppp baud-rate command to define the baud rate used in PPP sessions. Note that the peer baud rate must be set at the same value as the host.

The syntax for this command is:

`set ppp baud-rate` `<9600 | 19200 | 38400>`

Example:

```
P330-N# set ppp baud-rate 38400
```

set web aux-files-url

Use the `set web aux-files-url` command to allow the Device Manager to automatically locate the URL (the http: / / www address and path) of the Web server containing the Device Manager help files and Java plug-in.

Note: Ensure that the Web server is always accessible otherwise Web access to the device may take a few minutes.

The syntax for this command is:

`set web aux-files-url` `<//IP address/directory name>`

Example:

```
P330-N# set web aux-files-url //192.168.47.25/emweb-aux-files
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

set intelligent-multicast

Use the `set intelligent-multicast` command to enable or disable the IP-multicast filtering application.

The syntax for this command is:

`set intelligent-multicast` `{enable|disable}`

Example:

```
P330-N> set intelligent-multicast enable
Done!
```

set intelligent-multicast client port pruning time

Use the `set intelligent-multicast client-port-pruning time` command to define aging time for client ports.

The syntax for this command is:

`set intelligent-multicast client-port-pruning time` `<time>`

time	The time in seconds.

Example:

```
P330-N> set intelligent-multicast client-port-pruning-time 20
Done!
```

set intelligent-multicast router port pruning time

Use the `set intelligent-multicast router-port-pruning time` command to define aging time for router ports.

The syntax for this command is:

`set intelligent-multicast router-port-pruning time` `<time>`

time	The time in seconds.

Example:

```
P330-N> set intelligent-multicast router-port-pruning time 20
Done!
```

set intelligent-multicast group-filtering delay time

Use the `set intelligent-multicast group-filtering-delay time` command to define group filtering time delays.

The syntax for this command is:

`set intelligent-multicast group-filtering-delay time` `<time>`

time	The time in seconds.

Example:

```
P330-N> set intelligent-multicast group-filtering-delay time
20
Done!
```

set secure mac

Use the `set secure mac` command to add a unicast MAC address into the CAM table of a secured port. This command is accessed only through connection to a particular switch, not directly from the master switch.

Note: This command is not supported by the P332G-ML and P332GT-ML switches.

The syntax for this command is:

set secure mac <mac-address> **port** <mod-num>/<port-num>

set security mode

Use the `set security mode` command to enable or disable MAC security at the stack level. When enabled, the ports are secured based on their individual configuration. When disabled, all the ports in a stack are non-secured.

The syntax for this command is:

set security mode { enable | disable }

Output Example:

```
P330-N> set security mode enable
Security mode enabled.
```

set arp-aging-interval

Use this command to set the ARP table aging interval for gateways' entries in the agent ARP table. The MAC value for the default gateway of ML agent in the ARP table, is deleted at the end of every aging interval. The default value is 10 minutes.

The syntax for this command is:

set arp-aging-interval <value>

value	The number representing the interval, from 0-10 minutes.

Example:

```
P330-N# set arp-aging-interval 20
ARP aging interval was set to 20 minutes.
```

set arp-tx-interval

Use the set arp-tx-interval command to set the keep-alive frames sending interval. Setting the interval to 0 disables the transmission of the keep-alive frames.

The syntax for this command is:

set arp-tx-interval <value>

value	The interval, in seconds.

Output Example:

```
P330-N# set arp-tx-interval 15
ARP tx interval was set to 15 seconds.
```

set self-loop-discovery Admin_Status

Use the `set self-loop-discovery Admin_Status` command to enable or disable IBM token ring discovery feature at the module level.

Note: You must disable Spanning Tree before you can enable self-loop-discovery.

Note: This command is not supported by the P332G-ML and P332GT-ML switches.

The syntax for this command is:

`set self-loop-discovery Admin_Status` `<enable|disable> <modul num>`

Example:

```
P330-N# set self-loop-discovery Admin_Status enable 1
Self-Loop-Discovery is disabled on module 1.
```

set welcome message

Use the `set welcome message` command to set a welcome message to appear after a reboot or after opening a new session (see `session` command) in the stack.

The syntax for this command is:

`set welcome message` `[string]`

string	**string -** The string to be used as the welcome message. **blank -** Restores the default string.

Output Example:

```
P330-N# set welcome message avaya
The new welcome string is “avaya”
```

Note: If you wish to define a string which includes spaces, you must enclose the entire string in quotation marks, e.g. "new york".

set allowed managers

Use the `set allowed managers` command toenable / disable the Allowed Managers feature. When this feature is enabled, only those stations whose IP addresses are listed in the Allowed Managers table can access the device over Telnet, SNMP, or HTTP.

The syntax for this command is:

`set allowed managers [enabled|disabled]`

Output Example:

```
P330-N> set allowed managers enabled
Managers are enabled
```

set allowed managers IP

Use the `set allowed managers IP` command to add or remove an IP address from the Allowed Managers table. The Allowed Managers table can contain up to twenty IP addresses.

The syntax for this command is:

`set allowed managers ip [add|delete][IP address]`

Output Example:

```
P330-N> P330-1(super)# set allowed managers ip add
149.49.32.134
Ip was added to the table
```

set psu type

Use the `set psu type` command to set the main power supply type (AC / DC) of the module.

Note: This command is not applicable to P332G-ML and P332GT-ML switches. This command is used to set the power supply types for other P330 switches in the stack.

The syntax for this command is:

set psu type [AC|DC][module number]

Output Example:

```
P330-N> set psu type DC 3
Power supply type was changed to DC on module 3
```

sync time

Use the `sync time` command to synchronize the time used by all switches in a stack.

The syntax for this command is:

sync time

Output Example:

```
P330-N# sync time
Time has been distributed.
```

get time

Use the `get time` command to retrieve the time from the network.

The syntax for this command is:

get time

Output Example:

```
P330-N# get time
Time is already being acquired from network!
```

reset

Use the `reset` command to restart the system or an individual switch. If no switch number is defined or the switch number of the Master is defined, the command resets the entire system. If the switch number is defined, the command resets the specified switch only.

Note: You should perform a reset after downloading software to the switch.

The syntax for this command is:

`reset` `{module number}`

Output Example:

To reset the Master agent and force the entire system to reset:

```
P330-N# reset
This command will force a switch-over to the master module and
disconnect your telnet session.
Do you want to continue (y/n) [n]? y
Connection closed by foreign host.
```

Output Example:

To reset switch 4:

```
P330-N# reset 4
This command will reset module 4 and may disconnect your
telnet session.
Do you want to continue (y/n) [n]? y
Resetting module 4...
```

reset stack

Use the `reset stack` command to perform a hardware reset in the entire stack.

The syntax for this command is:

`reset stack`

reset mgp

Use the `reset mgp` command to perform a software reset in the G700 Media Gateway Processor.

The syntax for this command is:

`reset mgp`

reset wan

Use the `reset wan` command to perform a software reset in the X330 WAN Access Router Module.

The syntax for this command is:

`reset wan` `[module number][bank-a]`

module number	Optional - the module number where the WAN module to be reset resides.
bank-a	Optional - boot the WAN module from bank-a after reset.

Example:

To reset a WAN module residing on switch 2:

```
P330-N# reset wan 2
This command will force a switch-over to the wan device
and disconnect your telnet session
*** Reset *** - do you want to continue (Y/N)? y
```

nvram initialize

Use the `nvram initialize` command to reset the P330 parameters to the factory defaults. If no options are specified for this command, only the Layer 2 parameters will be reset.

The syntax for this command is:

nvram initialize [switch|all]

switch	Resets all the switching level parameters (Layer 2 only) throughout the stack
all	Resets all parameters including licenses and routing parameters of the Layer 3 switches present in the stack

Output Example:

```
P330-N# nvram initialize
This command will force a factory default and switch-over to
the master module and disconnect your telnet session.
Do you want to continue (y/n) [n]? y
Connection closed by foreign host.
host%
```

rmon history

Use the `rmon history` command to create an RMON history entry.

The syntax for this command is:

rmon history <history index> [<module>[</port>]] **interval** <interval> **buckets** <number of buckets> **owner** <owner name>

history_index	This is the history index number of this entry (it is advisable to use the same interface number as your history index number).
module / port	The switch number / the port number.
interval	The interval between 2 samples.
number of buckets	The number of buckets defined.
owner name	The owner name string.

Output Example:

```
P330-N# rmon history 1026 1026 3/2 30 buckets 20 owner amir
history 1026 was created successfully
```

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

rmon alarm

Use the `rmon alarm` command to create a new RMON alarm entry.

The syntax for this command is:

`rmon alarm` `<Alarm Number> <variable> <interval> <sampletype>` **`rising-threshold`** `<rising threshold> <rising event>` **`falling-threshold`** `<falling threshold> <falling event> <startup alarm> <owner>`

alarm number	This is the alarm index number of this entry (it is advisable to use the same interface number as your alarm index number.)
variable	This is the MIB variable which will be sampled by the alarm entry.
interval	The interval between 2 samples.
sample type	This can be set to either **delta** (the difference between 2 samples) or an **absolute** value.
rising threshold	This sets the upper threshold for the alarm entry.
rising event	The RMON event entry that will be notified if the upper threshold is passed.
falling threshold	This sets the lower threshold for the alarm entry.
falling event	The RMON event entry that will be notified if the lower threshold is passed.
startup alarm	The instances in which the alarm will be activated. The possible parameters are: **Rising, Falling, risingOrfalling**.
owner	Owner name string.

Output Example:

```
P330-N# rmon alarm 1026 1.3.6.1.2.1.16.1.1.1.5.1026 60 delta
rising-threshold 10000 1054 falling-threshold 10 1054
risingOrFalling amir
```

```
alarm 1026 was created successfully
```

rmon event

Use the `rmon event` command to create an RMON event entry.

The syntax for this command is:

`rmon event` `<Event Number> <type>` **`description`** `<description>` **`owner`** `<owner>`

event number	This is the event index number of this entry.
type	The type of the event. The possible parameters are: **trap, log, logAndTrap, none.**
description	A user description of this event
owner	Owner name string

Output Example:

```
P330-N#  rmon event 1054 logAndTrap description "event for
monitoring amir's computer" owner amir
event 1054 was created successfully
```

copy stack-config tftp

Use the `copy stack-config tftp` command to upload the stack-level parameters from the current NVRAM running configuration into a file via TFTP.

Note: Create the file into which you wish to upload the stack-level parameters prior to executing this command.

The syntax for this command is:

`copy stack-config tftp` `<filename> <ip>`

filename	The file name (full path)
ip	The IP address of the TFTP server

Output Example:

```
P330-N# copy stack-config tftp c:\conf.cfg 192.168.49.10
Beginning upload operation ...
```

```
This operation may take a few minutes...
Please refrain from any other operation during this time.
For more information , use 'upload status' command
*********************************************************************
* If you are currently running the P330 Device Manager application,*
* it is recommended to exit from it before performing configuration*
* download operations.                                              *
*********************************************************************
```

copy module-config tftp

Use the `copy module-config tftp` command to upload the switch-level parameters from the current NVRAM running configuration into a file via TFTP.

If an error occurred during upload (you can check this using the command `show tftp upload status`) you must fix the problem. The following is a list of possible problems:

a You did not create an empty text file at the destination server (0 Bytes).
b You do not have the correct path to the file.
c The destination server is not active / on.
d The destination server is unreachable.

Then, perform the upload procedure again *twice* as follows:

a Delete the destination file and recreate a correctly named empty file at the destination server (0 Bytes)
b Type the command `copy module-config tftp` for the first time.
c Delete the destination file and recreate a correctly named empty file at the destination server (0 Bytes)
d Type the command `copy module-config tftp` again, a second time.

The syntax for this command is:

`copy module-config tftp` `<filename> <ip> <mod_num>`

filename	The file name (full path)
ip	The IP address of the TFTP server
mod-num	The switch number

Output Example:

```
P330-N# copy module-config tftp c:\config\switch1.cfg
192.168.49.10 5
Beginning upload operation ...
This operation may take a few minutes...
Please refrain from any other operation during this time.
```

```
For more information , use 'show tftp upload status' command

*********************************************************************
* If you are currently running the P330 Device Manager application,*
* it is recommended to exit from it before performing configuration*
* download operations.                                              *
*********************************************************************
```

copy tftp stack-config

Use the `copy tftp stack-config` command to download the stack-level configuration from a saved file into the current NVRAM running configuration, via TFTP. To use this command, you need to have an active tftp server, and to create a file into which to download the data. If Avaya Multi-Service Network Manager is running, an additional TFTP server is not required.

Note: You should perform the `nvram initialize` command prior to the `copy tftp` operation.

The syntax for this command is:

`copy tftp stack-config` `<filename> <ip>`

filename	The file name (full path)
ip	The IP address of the TFTP server

Example:

```
P330-N# copy tftp stack-config c:\config\switch1.cfg
192.168.49.10
```

copy tftp module-config

Use the `copy tftp module-config` command to download the switch-level configuration from a saved file into the current NVRAM running configuration of a switch, via TFTP. To use this command, you need to have an active tftp server, and to create a file into which to download the data. If Avaya Multi-Service Network Manager is running, an additional tftp server is not required.

Note: You should perform the `nvram initialize` command prior to the `copy tftp` operation.

The syntax for this command is:

copy tftp module-config <filename> <ip>

filename	The file name (full path)
ip	The ip address of the TFTP server

Example:

```
P330-N# copy tftp module-config  c:\config\switch1.cfg
192.168.49.10 5
```

copy tftp EW_archive

Use the `copy tftp EW_archive` command to download the P330 Device Manager application into the switch via TFTP. To use this command, you need to have an active TFTP server, and to create a file into which to download the data. If Avaya Multi-Service Network Manager is running, an additional TFTP server is not required.

The syntax for this command is:

copy tftp EW_archive <filename> <ip> <mod_num>

filename	Embedded Web Manager image file name (full path)
ip	The ip address of the TFTP server
mod_num	Target switch number

Example:

```
P330-N# copy tftp EW_archive c:\p330\p330web201
192.168.49.10 5
```

copy tftp SW_image

Use the `copy tftp SW_image` command to update the software image and the device manager applications of a designated switch. To use this command, you need to have an active TFTP server, and to create a file into which to download the data. If Avaya Multi-Service Network Manager is running, an additional tftp server is not required.

The syntax for this command is:

copy tftp SW_image <image-file> **EW_archive <**filename**>**<ip>

<mod_num>

image-file	Common name for the files that contain the Software Image and Embedded Web archive (full path)
filename	Embedded Web Manager image file name (full path)
ip	The ip address of the TFTP server
mod_num	Target switch number

Example:

```
P330-N# copy tftp SW_image c:\p330\p330web101 EW_archive
c:\p330\p330web201 192.168.49.10 5
```

Radius Commands

The following radius commands are accessible from Privileged mode.

• set radius authentication secret	Enables secret authentication for the Avaya P330 unit.	Page 133
• set radius authentication server	Sets a primary or secondary RADIUS server IP address.	Page 133
• clear radius authentication server	Removes a primary or secondary RADIUS authentication server.	Page 133
• set radius authentication retry-time	Sets the time to wait before re-sending an access request.	Page 134
• set radius authentication retry-number	Sets the number of times an access request is sent when there is no response.	Page 134
• set radius authentication udp-port	Sets the RFC 2138 approved UDP port number.	Page 134

set radius authentication secret

Use the `set radius authentication secret` command to enable secret authentication for the P330 unit.

The syntax for this command is:

`set radius authentication secret <string>`

`string` text password

Example:

```
P330-N(super)# set radius authentication secret sodot
```

set radius authentication server

Use the `set radius authentication server` command to set a primary or secondary RADIUS server IP address.

The syntax for this command is:

`set radius authentication server` `<ip-address> <primary|secondary>`

ip-addr	IP address of the RADIUS authentication server
primary	default - Primary authentication server
secondary	Secondary authentication server

Example:

```
P330-N(super)# set radius authentication server 192.168.38.12
primary
```

clear radius authentication server

Use the `clear radius authentication server` command to remove a primary or secondary RADIUS authentication server.

The syntax for this command is:

`clear radius authentication server``[{primary|secondary}]`

set radius authentication retry-time

Use the `set radius authentication retry-time` command to set the time to wait before re-sending an access request.

The syntax for this command is:

`set radius authentication retry time` `<time>`

time	Retry time in seconds

set radius authentication retry-number

Use the `set radius authentication retry-number` command to set the number of times an access request is sent when there is no response.

The syntax for this command is:

`set radius authentication retry number` `<number>`

number	Retry number

set radius authentication udp-port

Use the `set radius authentication udp-port` command to set the RFC 2138 approved UDP port number. Normally, the UDP port number should be set to its default value of 1812. Some early implementations of the RADIUS server used port number 1645.

The syntax for this command is:

`set radius authentication server udp-port` `<number>`

Supervisor Level Commands

This level includes all the commands of the User and Privileged Levels (including all `show` and `set` commands).

username

Use the `username` command to add a local user account. You can only do this from within the Supervisor Level.

The syntax for this command is:

`username` `<name>` **`password`** `<passwd> access-type{read-only|read-write|admin}`

name	New user name
passwd	User's password
access-type	Access type definition - read only, read-write or administrator

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

no username

Use the `no username` command to remove a local user account.

The syntax for this command is:

`no username` `<name>`

Note: If you wish to define a name which includes spaces, you must enclose the entire name in quotation marks, e.g. "new york".

show username

Use the `show username` command to display the username.

The syntax for this command is:

`show username`

Output Example:

```
P330-N> show username
User account    password                        access-type
--------------  ------------------------------  -----------
root            ****                            admin
```

set ppp chap-secret

Use the `set ppp chap-secret` command to configure the shared secret used in PPP sessions with CHAP authentication.

The syntax for this command is:

`set ppp chap-secret` `<chap-secret>`

chap-secret	The shared secret, 4 to 32 characters.

Output Example:

```
P330-N(super)# set ppp chap secret sodot
PPP shared secret for CHAP authentication is set
```

show radius authentication

Use the `show radius authentication` command to display all RADIUS authentication configurations. The shared secrets are not displayed.

The syntax for this command is:

`show radius authentication`

Example:

```
P330-N(super)# show radius authentication
RADIUS authentication parameters:
---------------------------------
Mode:                 Enabled
Primary-server:       192.168.42.252
Secondary-server:     192.168.48.134
Retry-number:         4
Retry-time:           5
UDP-port:             1645
Shared-secret:        sodot
```

set radius authentication

Use the `set radius authentication` command to enable or disable authentication for the P330 unit. RADIUS authentication is disabled by default.

The syntax for this command is:

`set radius authentication` `[enable|disable]`

tech

Use the `tech` command to enter tech mode. This command is reserved for service personnel use only.

Chapter 7

Installing the Embedded Web Manager

The Embedded Web Manager provides the following:

- Managing and monitoring Power over Ethernet.
- Device Configuration - Viewing and modifying the different device configurations.
- Virtual LANs - Viewing and editing Virtual LAN information.
- Link Aggregation Groups (LAGs) - Viewing and editing LAG information.
- Software Redundancy - Setting software redundancy for ports in an Avaya P330 Switch.
- Port Mirroring - Setting up port mirroring for ports in an Avaya P330 Switch.
- Trap Managers Configuration - Viewing and modifying the Trap Managers Table.
- Switch Connected Addresses - View devices connected to selected ports.IP Multicast filtering with IGMP snooping (new hardware)
  - Software support from s/w 3.0.
- Hardware support - from Hardware Ver. C/S; 2.0.
- Port Security.
- Intermodule Redundancy
  - One pair per stack.
  - Also operates as a result of a module fault, e.g., power failure.

System Requirements

Minimum hardware and Operating System requirements are:

- One of the following operating systems:
  - Windows® 95
  - Windows 98 SP1
  - Windows 98 OSR (Second Edition)
  - Windows ME
  - Windows NT® 4 Workstation or Server
  - Windows 2000 Professional or Server
- Pentium® II 400 Mhz-based computer with 256 Mb of RAM (512 Mb recommended)
- Minimum screen resolution of 1024 x 768 pixels
- Sun Microsystems Java™ plug-in version 1.2.2 (supplied)

- Microsoft® Internet Explorer® **or** Netscape Navigator / Communicator® (see table)

Table 7.1 Embedded Web Manager/Browser Compatability

	Windows 95 or NT	Windows 98, ME or 2000
Internet Explorer	5.0 or higher	5.01 or higher
Netscape Navigator / Communicator	4.7	4.73

Note for users of Netscape Navigator: The Java plug-in requires certain services from **Windows 95** which are not present if **Internet Explorer** is not installed. In order to add these services to the operating system, please install Internet Explorer version 3 or higher. You can then use either browser to manage the switch.

Running the Embedded Web Manager

Note: You should assign an IP address to the switch before beginning this procedure.

1 Open your browser.
2 Enter the url of the switch in the format **`http://aaa.bbb.ccc.ddd`** where ***`aaa.bbb.ccc.ddd`*** is the IP address of the switch.

Note: The user name is “root”
The default password for read-write access is “root”.

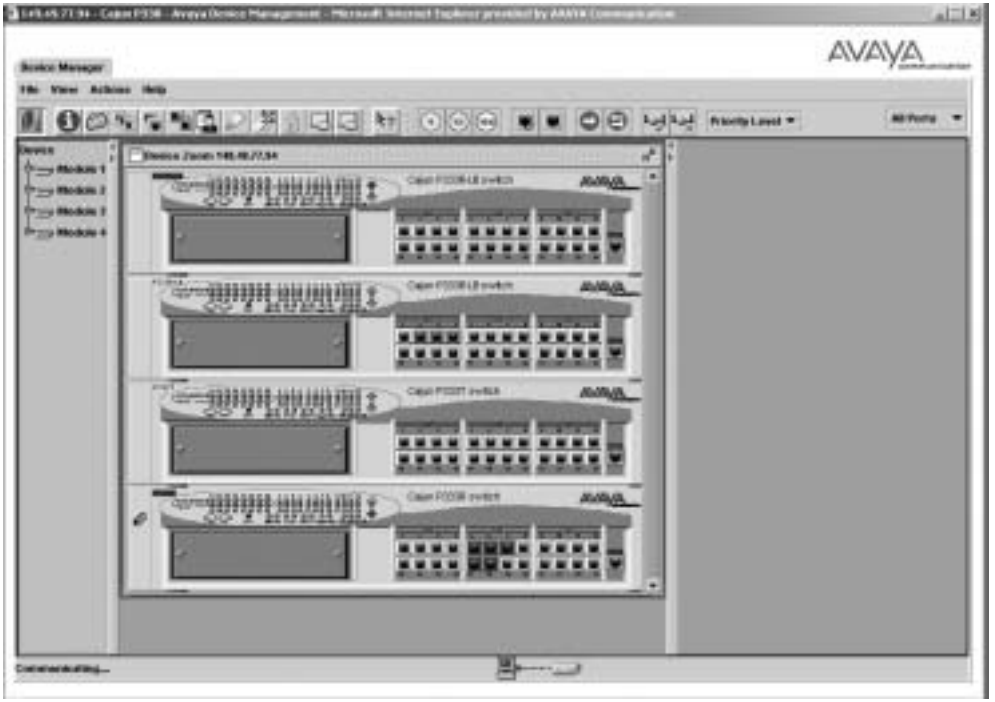
Note: The Web management passwords are the same as those of the CLI. If you have created additional CLI user names or changed the default passwords then you can use those passwords for Web management as well.

The welcome page is displayed:

Figure 7.1 The Welcome Page

— If you have the Java plug-in installed, the Web-based manager should open in a new window (see Figure 7.2).

Figure 7.2 Web-based Manager



— If you do **not** have the Java plug-in installed, follow the instructions on the Welcome page that offers a variety of options to install the plug-in (see Figure 7.1).

Installing the Java Plug-in

If the network manager has configured the system, the plug-in should be installed automatically.

Note: Ensure that Java or JavaScript is enabled on your Web browser. Please refer to your browser on-line help or documentation for further information.

If the plug-in is not installed automatically, then you have three options for installing it manually:

1 Installing from the Avaya P330 Documentation and Utilities CD

1 Close all unnecessary applications on your PC.
2 Insert the "Avaya P330 Documentation and Utilities" CD into the CD drive.
3 Click **Start** on the task bar.
4 Select Run.
5 Type ***x:*****\emweb-aux-files\plug-in_1_3_1.exe** where ***x:*** is the CD drive letter.
6 Follow the instructions on screen.

2 Install from the Avaya Site

Click on the link in the Welcome page.

3 Install from your Local Web Site

Click on the link in the Welcome page.

Note: This option is only available if the network manager has placed the files on the local Web server.

Installing the On-Line Help and Java Plug-In on your Web Site

Note: This procedure is optional.

Copying the help files and Java plug-in to a local Web server allows users to access the on-line help for the Embedded Manager and enables automatic installation of the Java plug-in the first time the users tries to manage the device.

1 Copy the `emweb-aux-files` directory from the "Avaya P330 Documentation and Utilities" CD to your local Web server. Please refer to your Web server documentation for full instructions.

2 Define the URL in the Avaya P330 using the following CLI command:
`set web aux-files-url` ***`//IP address/directory name`***
where ***`//IP address/directory name`*** is the location of the directory from the previous step.
Refer to Chapter 6 for further details of the command.

Documentation and Online Help

Refer to the Avaya P330 Documentation and Utilities CD.

Software Download

You can perform software download using the CLI or Avaya UpdateMaster (part of the Avaya Multi-Service Network Manager Suite).

Specifications

Avaya P332MF Switch

Physical

Height	2U (88 mm, 3.5”)
Width	482.6 mm (19”)
Depth	450 mm (17.7”)
Weight	8 kg (17.6 lb)

Power Requirements — AC

Input voltage	100 to 240 VAC, 50/60 Hz
Power dissipation	150 W max
Input current	5.3 A

Power Requirements — DC

Input voltage	-36 to -72 VDC
Power dissipation	150 W max
Input current	5.1 A max
Inrush current	50 A max

Laser Data

Laser type	Multimode
Wavelength	1300 nm

Output power dissipation	0.60 W max
Transmit power	-19 dbm min, -14 dbm max
Receive power	-31 dbm max

Environmental

Operating Temp.	-5 to 50°C (23 to 122°F)
Relative Humidity	5% to 95% non-condensing

Safety

- UL for US approved according to UL195O Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Laser components are “Class 1 Laser Products”:
  - EN-60825/IEC-825-1 for Europe
  - FDA 21 CFR 1040.10 and 1040.11 for USA.
- Overcurrent Protection: A readily accessible listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

Avaya P330 DC Input Version

- Restricted Area Access: This device should only be installed in a restricted access area.
- Installation Codes: This device must be installed in accordance with the US National Electrical Code, Articles 110-26 and 110-27, and the Canadian Electrical Code, Section 12.
- Overcurrent Protection: A readily accessible Listed branch-circuit overcurrent protective device with a 15A rating must be incorporated in the building wiring.

Agency Approvals

EMC Emissions

Approved according to:

- US - FCC Part 15 Subpart B, Class A
- EU - EN55022 Class A
- EU - EN61000-3-2

- Japan - VCCI-A

Immunity

Approved according to:

- EN55024
- EU - EN61000-3-3

Other

Approved according to:

- CLEI Code: According to Tecordia (Bellcore) KS-22022 Standard
- NEBS Level 3:
  - AC Product with optional brackets
  - DC Product certified

Interfaces

- 12 x 100BASE-FX MT-RJ port connectors.
- RS-232 for terminal setup via RJ45 connector on front panel.

Standards Compliance

The Avaya P330 complies with:

IEEE

- 802.3x Flow Control on all ports
- 802.1p Priority Tagging compatible on all ports
- 802.1Q VLAN Tagging support on all ports
- 802.1D Bridges and STA
- 803.2z Gigabit Ethernet ports
- 803.2u Ethernet / Fast Ethernet ports

IETF

- MIB-II - RFC 1213
- Bridge MIB for Spanning Tree - RFC 1493
- Bridge MIB for STP and CAM contents - RFC 1314
- ATM Management - RFC 1695
- RMON - RFC 1757
- SMON - RFC 2613

Basic MTBF

- 140,000 hrs minimum (see Section MTBF in Various Configurations)

Stacking Module

Table A.1 Stacking Module

Name	Number of Ports
X330STK	2

Expansion Modules

Gigabit Ethernet Expansion Modules

Table A.2 Gigabit Ethernet Expansion Modules

Name	Number of Ports	Interface
X330S2	2	1000Base-SX
X330L2	2	1000Base-LX
X330S1	1	1000Base-SX
X330L1	1	1000Base-LX

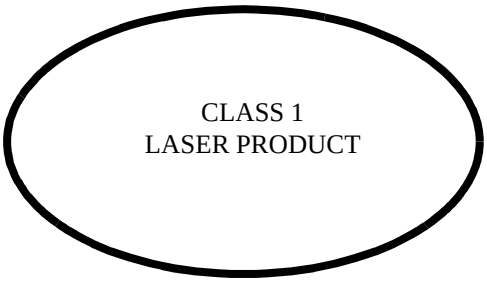
Laser Safety

The Avaya X330S1/S2 multi-mode transceivers and the Avaya X330L1/X330L2 single mode transceivers are Class 1 laser products.

They comply with IEC 825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The transceivers must be operated under recommended operating conditions.

Laser Classification



Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.

Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

The optical ports of the module must be terminated with an optical connector or a dust plug when not in use.

Laser Data

Avaya P330S2 Expansion Modules

Wavelength: 850 nm

Output power dissipation: Max. 0.63W

Transmit power: Min. -9 dbm, Max. -4 dbm

Receive power: Min. -17 dbm, Max. 0 dbm

Avaya P330L1/2 Expansion Modules

Wavelength: 1300 nm

Output power dissipation: Max. 0.68W

Transmit power (9 µm SMF): Min. -9.5 dbm, Max. -3 dbm

Transmit power (62.5 µm and 50 µm MMF): Min. -11.5 dbm, Max. -3 dbm

Receive power (9 µm SMF, 62.5 µm and 50 µm MMF): Min. -20 dbm, Max. -3 dbm

Fast Ethernet Fiber Expansion Module

Table A.3 Fiber Fast Ethernet Expansion Module

Name	Number of Ports	Interface
X330F2	2	100Base-FX

Ethernet/Fast Ethernet Expansion Module

Table A.4 Ethernet/Fast Ethernet Expansion Module

Name	Number of Ports	Interface
X330T16	16	10/100Base-T

GBIC Expansion Module

The Avaya X330G2 Expansion Module is the GBIC (1.25 Gbit/s Gigabit Ethernet) Expansion Module for the Avaya P330 family of stackable switches.

Note: In order to use this module the Avaya P330 switch must must have Embedded S/W Version 2.2 or higher. You can download this from: http://www.avayanetwork.com/

The X330G2 can be used either as a Gigabit Ethernet link or as a high Bandwidth backplane for connecting switches. The introduction of the GBIC interface to the Avaya P330 family presents an added value over the existing Gigabit Ethernet expansion modules. You can insert any of the Avaya-authorized GBIC transceivers into the X330G2 Expansion Module socket. This provides you with a highly modular and customisable Gigabit Ethernet interface. The GBIC transceivers are hot-swappable.

Safety Information

The multimode and single-mode GBIC transceivers are Class 1 Laser products. They comply with EN 60825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The GBIC transceivers must be operated under recommended operating conditions.

Laser Classification

Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.

Caution: The use of optical instruments with this product will increase eye hazard.

Usage Restriction

When a GBIC transceiver is inserted into the X330G2 Expansion Module but is not in use, then the Tx and Rx ports should be protected with an optical connector or a dust plug.

Avaya Approved GBIC Transceivers

Caution: All Avaya approved GBICs are 5V. Do not insert a 3.3V GBIC.

Avaya supplies the following two GBIC transceivers for the Avaya P330 X330G2 Expansion Modules. You can order these directly from your local Avaya representative using the PEC or COM Codes:

Type	Description	PEC Code	COM Code
GBIC SX Transceiver	Multimode Fiber 1000BaseSx (550 m)	4705-122	108659228
GBIC LX Transceiver	Single-mode Fiber 1000BaseLx (10 km)	4705-121	108659210

In addition, Avaya has tested and approved a number of GBIC transceivers from other manufacturers for use with the Avaya X330G2 Expansion Module.
An up-to-date list can be found in Avaya's website at the following address: http://www.avayanetwork.com/.
Click on the "Supported Devices" icon.

Specifications

X330G2- LX GBIC Transceiver

A 9 mm or 10 mm single-mode fiber (SMF) cable may be connected to a 1000Base-LX GBIC port. The maximum length is 10 km (32,808 ft).

A 50 mm or 62.5 mm multimode (MMF) fiber cable may be connected to a 1000Base-LX GBIC port. The maximum length is 550 m (1,804 ft.) for 50 mm and 62.5 mm cable.

The LX transceiver has a Wavelength of 1300 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

X330G2- SX GBIC Transceiver

A 50 μm or 62.5 μm multimode (MMF) fiber cable may be connected to a 1000Base-SX GBIC port. The maximum length is 500 m (1,640 ft.) for 50 μm cable and 220 m (722 ft.) for 62.5 μm cable.

The SX transceiver has a Wavelength of 850 nm, Transmission Rate of 1.25 Gbps and Input Power of 5V.

Agency Approval

The transceivers comply with:

- EMC Emission: US – FCC Part 15, Subpart B, Class A;
  Europe – EN55022 class A
- Immunity: EN50082-1
- Safety: UL for US UL 1950 Std., C-UL (UL for Canada) C22.2 No.950 Std., Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11, and CE for Europe EN60950 Std. Complies with EN 60825-1.

MTBF

The Mean Time Between Failures (MTBF) for the X330G2 Expansion Sub-module is 594,639 hours.

X330GT2 Gigabit Ethernet Expansion Module

The X330GT2 Expansion Module provides two copper Gigabit Ethernet 1000Base-T ports.

Note: The X330GT2 module is only supported by Avaya P330 embedded software versions 2.4 and higher.

Installing the Expansion Module in the Avaya P330

1 Remove the blanking plate or other Module (if installed).
2 Insert the Module gently into the slot, ensuring that the Printed Circuit Board (PCB) is aligned with the guide rails.
The PCB *not* the metal base plate fits into the guide rail.
3 Press the Module in firmly until it is completely inserted into the Avaya P330.
4 Gently tighten the two screws on the front panel of the expansion module by turning the screws.

Note: The expansion modules contain components sensitive to electrostatic discharge. Do not touch the circuit board unless instructed to do so.

Removing an Existing Expansion Module

1 Loosen the screws by turning the knobs.
2 Grasp the two knobs one near each side of the front panel, and pull gently but firmly towards yourself.
3 Insert another expansion module or the blanking plate.

Note: The Avaya P330 switch must not be operated with the expansion slot open; the expansion module should be covered with the supplied blanking plate if necessary.

Note: X330GT2 Modules are hot swapable and can be inserted or removed in an operating base unit.

Cabling

A Category 5 copper cable with RJ-45 termination should be used. You should use all eight wires in the cable.

The maximum copper cable length connected to a 1000Base-T port is 100 m (328 ft.)

ATM Expansion Modules

There are three Avaya P330 ATM Expansion Modules:

- X330-OC12F1: 500m, Multimode fiber, can also be OC-3 reduced range
- X330-OC12S1: 15 km, Single-mode fiber, can also be OC-3

The ATM Modules can be installed in the following Avaya P330 Family switches:

- Avaya P333T Hardware Version C/S 1.3 and higher, with Embedded S/W 2.4 and higher.

Note: The ATM Expansion Module cannot be used in Avaya P333T hardware Versions lower than C/S 1.3.

- Avaya P334T Embedded S/W Ver. 2.4 and higher.
- Avaya P332MF Embedded S/W Ver. 3.0 and higher.
- Avaya P333R Embedded S/W Ver. 2.4 and higher.

Refer to the Avaya X330 ATM Access Module Installation Guide for installation procedures.

The multimode Avaya X330-OC12F1 and X330-OC3F1 (future) ATM Modules are Class 1 LED products. The single-mode X330-OC12S1 ATM Module is a Class 1 Laser product. They comply with EN 60825-1 and Food and Drug Administration (FDA) 21 CFR 1040.10 and 1040.11.

The Modules must be operated under recommended operating conditions.

Safety Information

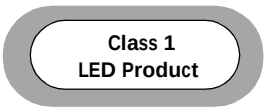
Single-mode Module Laser Classification

Note: Class 1 lasers are inherently safe under reasonably foreseeable conditions of operation.

Caution: The use of optical instruments with this product will increase eye hazard.

Multi-Mode Module LED Warning

The following warnings apply to the X330 ATM Modules equipped with multi-mode fiber.



Warning: Class 1 LED Product. Do not view the LED through any magnifying device while it is powered on. Never look directly at the fiber Tx port and fiber cable ends when powered on.

Backup Power Supply (BUPS)

Physical

Height	2U (88 mm, 3.5”)
Width	482.6 mm (19”)
Depth	450 mm(17.7”)
Weight	10 kg (22 lb)

Power Requirements

Input voltage	100-240 VAC, 50/60 Hz
Input current	7.76 A@100 VAC 3.82 A@200 VAC
Inrush current	70 A@100 VAC (max.) 150 A@200 VAC (max.)
Output power	4 x 27 A@ 5.5 V
Output voltage	5.5V

Environmental

Operating Temp.	$0\text{-}50^0$C ($32\text{-}122^0$F)
Rel. Humidity	5% to 95% non-condensing

Safety

- UL for US approved according to UL195O Std.
- C-UL(UL for Canada) approved according to C22.2 No.950 Std.
- CE for Europe approved according to EN 60950 Std.
- Overcurrent Protection: A readily accessible Listed safety-approved protective device with a 16A rating must be incorporated in series with building installation AC power wiring for the equipment under protection.

EMC Emissions

Emissions

Approved according to:

- Europe - EN55022 class A, 1994
- Europe - EN 6150-3-2 (Harmonics Current Emissions
- Europe - EN 6150-3-3 (Flicker)

Immunity

Approved according to:

- EN 50082-1
- IEC 150-4-5

BUPS MTBF

- 125,194 hrs minimum (see Section MTBF in Various Configurations)

MTBF in Various Configurations

The following table provides the MTBF for the Avaya P333T-PWR P332MFin various configurations.

Table B.7 MTBF for the Avaya P332MF in Various Configurations

Model	Without BUPS		With BUPS	
	Without X330STK	With X330STK	Without X330STK	With X330STK
P332MF	163,995	140,766	242,000	200,000
P332MF+X330T16	137,893	121,080	186,000	159,000
P332MF+X330F2	133,227	117,467	178,000	154,000
P332MF+X330L2 / X330S2	125,298	111,259	165,000	144,000
P332MF+X330L1 / X330S1	>125,298	>111,259	>165,000	>144,000
P332MF+X330G2	128,568	113,830	168,000	149,000
P332MF+X330GT2	137,571	120,831	186,000	160,000

Index of CLI Commands

How to Contact Us

To contact Avaya's technical support, please call:

In the United States

Dial 1-800-237-0016, press 0, then press 73300.

In the EMEA (Europe, Middle East and Africa) Region

Country	Local Dial-In Number
Albania	+31 70 414 8001
Austria	+43 1 36 0277 1000
Azerbaijan	+31 70 414 8047
Bahrain	+800 610
Belgium	+32 2 626 8420
Belorussia	+31 70 414 8047
Bosnia Herzegovina	+31 70 414 8042
Bulgaria	+31 70 414 8004
Croatia	+31 70 414 8039
Cyprus	+31 70 414 8005
Czech Rep.	+31 70 414 8006
Denmark	+45 8233 2807
Egypt	+31 70 414 8008
Estonia	+372 6604736
Finland	+358 981 710 081

Country	Local Dial-In Number
France	+33 1 4993 9009
Germany	+49 69 95307 680
Ghana	+31 70 414 8044
Gibraltar	+31 70 414 8013
Greece	+00800 3122 1288
Hungary	+06800 13839
Iceland	+0800 8125
Ireland	+353 160 58 479
Israel	+1 800 93 00 900
Italy	+39 02 7541 9636
Jordan	+31 70 414 8045
Kazakhstan	+31 70 414 8020
Kenya	+31 70 414 8049
Kuwait	+31 70 414 8052
Latvia	+371 721 4368

Country	Local Dial-In Number
Lebanon	+31 70 414 8053
Lithuania	+370 2 756 800
Luxemburg	+352 29 6969 5624
Macedonia	+31 70 414 8041
Malta	+31 70 414 8022
Mauritius	+31 70 414 8054
Morocco	+31 70 414 8055
Netherlands	+31 70 414 8023
Nigeria	+31 70 414 8056
Norway	+47 235 001 00
Oman	+31 70 414 8057
Pakistan	+31 70 414 8058
Poland	+0800 311 1273
Portugal	+351 21 318 0047
Qatar	+31 70 414 8059
Romania	+31 70 414 8027
Russia	+7 095 733 9055
Saudi Arabia	+31 70 414 8022

Country	Local Dial-In Number
Slovakia	+31 70 414 8066
Slovania	+31 70 414 8040
South Africa	+0800 995 059
Spain	+34 91 375 3023
Sweden	+46 851 992 080
Switzerland	+41 22 827 8741
Tanzania	+31 70 414 8060
Tunisia	+31 70 414 8069
Turkey	+800 4491 3919
UAE	+31 70 414 8036
Uganda	+31 70 414 8061
UK	+44 0207 5195000
Ukraine	+31 70 414 8035
Uzbekistan	+31 70 414 8046
Yemen	+31 70 414 8062
Yugoslavia	+31 70 414 8038
Zimbabwe	+31 70 414 8063

Email: csctechnical@avaya.com

In the AP (Asia Pacific) Region

Country	Local Dial-In Number
Australia	+1800 255 233
Hong Kong	+2506 5451
Indonesia	+800 1 255 227
Japan	+0 120 766 227
Korea	+0 80 766 2580

Country	Local Dial-In Number
Malaysia	+1800 880 227
New Zealand	+00 800 9828 9828
Philippines	+1800 1888 7798
Singapore	+1800 872 8717
Taiwan	+0 80 025 227

Email: sgcoe@avaya.com

In the CALA (Caribbean and Latin America) Region

Email: caladatasupp@avaya.com

Hot Line:+1 720 4449 998

Fax:+1 720 444 9103

For updated information, visit www.avayanetwork.com and click "Global Support Organization (GSO)".